



S.S.G. PAREEK PG COLLEGE



(Affiliated to the University of Rajasthan)
UGC Approved "First Heritage College in Rajasthan"

Estd. - 1906

Program: Bachelor of Computer Application (Three Years Course)

2018-19 to 2022-23


Program Educational Objective (PEO)

Program Specific Outcomes (PSOs)

Program Outcomes (POs)

Course Outcomes (COs) and Teaching Plans

 Kanti Chandra Road, Bani Park, Jaipur-302016 (Raj.)
 Tel. : 0141-2202167

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S. No.	Particulars
1	Vision
2	Mission
3	Program Educational Objectives (PEOs)
4	Program Outcomes (POs)
5	Program Specific Outcomes (PSOs)
	Year - I
6.1	Course Outcomes (COs)
6.2	CO - PO Mapping
	Year - II
7.1	Course Outcomes (COs)
7.2	CO - PO Mapping
	Year - III
8.1	Course Outcomes (COs)
8.2	CO - PO Mapping

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Programme: BCA

1. Mission of the Institute

- ❖ To demonstrate a perfect synergy between tradition and modernity; scientific rationality and didactic wisdom
- ❖ To imbibe the spirit of inquiry, professional sagacity and deftness in the students
- ❖ To provide the students with requisite skills set to survive, sustain and succeed in cutting edge competition
- ❖ To catapult their carrier to reach at the top eight the corporate ladder
- ❖ To produce socially responsible global citizen bringing With rich cultural ethos and ethical values

2. Vision of the Institute

- ❖ To provide education par excellence and make it accessible to all strata of society.
- ❖ TO produce leaders and not just the followers by instilling prudent, ingenious and righteous thinking.
- ❖ To promote gender, class, caste, creed and religious equality.

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- ❖ To bring about a radical change in the society by empowering the spirit of entrepreneurship and innovation in the students.

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3. Program Educational Objectives (PEOs)

PEO1: Technical Proficiency: Demonstrate a strong foundation in computing principles, programming languages, and software development, enabling them to apply technical knowledge effectively in diverse computing environments.

PEO2: Problem Solving: Able to analyze, design, and implement solutions to complex computing problems, utilizing critical thinking, logical reasoning, and creativity.

PEO3: Professionalism and Ethical Conduct: Uphold high ethical standards, demonstrating professionalism, integrity, and responsibility in their computing practices while considering societal and environmental impacts.

PEO4: Continuous Learning and Adaptability: Engage in continuous learning, adapting to technological advancements and evolving industry trends, ensuring they remain adept and relevant throughout their professional careers.


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4. Program Outcome (POs)

PO1: Computer Knowledge: Exhibit a profound understanding of multidiscipline- and foundational engineering principles, including algorithms, data structures, programming languages, and system architecture, enabling them to analyze and solve complex computing problems effectively.

PO2: Problem Analysis: Ability to identify, critically analyze and formulate computing problems using fundamentals of computer science and application domains.

PO3: Design/Development of the Solution: Transform innovative solutions to complex computing problems, integrating theoretical knowledge with practical skills in software development, system design, and application programming and propose integrated solutions using emerging technologies.

PO4: Conduct Investigations of Complex Problems: Conduct in-depth investigations of complex computing problems, applying research methodologies and utilizing analytical tools to explore, evaluate, and propose effective solutions.

PO5: Modern Tool Usage: Ability to select modern computing tools, skills and techniques necessary for innovative software solutions.

PO6: Engineer & Society: Apply reasoning informed by contextual information to evaluate societal, health, safety, legal, and cultural issues, as well as the obligations that come with them, in the context of professional engineering activity.

PO7: Environment and Sustainability: Demonstrate awareness of environmental and sustainability issues in computing, applying responsible practices and considering the ecological impact of technology solutions.


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PO8: Ethics: Adhere to ethical principles and professional standards in computing practices, promoting integrity, privacy, and responsible use of technology in a global context.

PO9: Individual and Teamwork: Ability to work as a member or leader in diverse teams in a multidisciplinary environment and understand management and computing principles to manage projects in multidisciplinary environments.

PO10: Communication: Contribute to progressive community and society in comprehending computing activities by writing effective reports, designing documentation, making effective presentation, and understand instructions.

PO11: Project Management and Finance: Establishing strategies in developing and implementing ideas in multi- disciplinary environments using computing and management skills as a member or leader in a team.

PO12: Lifelong Learning: Embrace a commitment to lifelong learning, continuously adapting to evolving technologies, acquiring new skills, and staying current with advancements in the dynamic field of computing throughout their professional careers.

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5. Program Specific Outcomes (PSOs)

PSO1: Software Development Proficiency: Demonstrate proficiency in software development, including the ability to design, code, test, and debug software applications using various programming languages.

PSO2: Database Management Competence: Possess the competence to design and manage databases effectively, demonstrating the ability to create, modify, and query databases to support information management requirements.

PSO3: System Analysis and Design Skills: Acquire skills in system analysis and design, enabling them to analyze user requirements, model system processes, and design efficient and scalable computing solutions.

PSO4: Web Technology Aptitude: Exhibit aptitude in web technologies, including designing and developing interactive and dynamic web applications using appropriate tools and frameworks.

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6.1 BCA Part-I	
Course	Course outcomes:-After completion of these courses students should be able to
Paper : I Computer Fundamentals and Office Management Tools	<p>CO1: To describe basic concepts of computer along with input output devices.</p> <p>CO2: To Demonstrate number system, computer software and computer language concepts.</p> <p>CO3: To apply MS word features, documents Document creation, editing formatting, mail merge, and graphics table's conversion.</p> <p>CO4: To develop MS Excel skills worksheet creation, charts, database, macros, synthesis.</p> <p>CO5: To adept advanced MS PowerPoint and Access skills to design interactive presentation and dynamic database.</p>
Paper II : COMPUTER ARCHITECTURE	<p>CO1: To Describe understanding of Boolean algebra, logic gates, data representation principles.</p> <p>CO2: To illustrate sequential logic design and analyze Flip-flops, master slave flip-flops and arithmetic circuits.</p> <p>CO3: To demonstrate understanding of Register Transfer Language, Micro-operations, CPU design and Applying principles to implement simple CPU.</p> <p>CO4: To explain computer organization principles including in instruction codes, registers, addressing modes, and instruction cycles.</p> <p>CO5: To outline memory Hierarchy I/O Interrupts and Direct memory access principles.</p>


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Paper-III : Operating System	<p>CO1: Explain OS terminology, evolution, design factors, and device management concepts.</p> <p>CO2: Demonstrate the knowledge of the components of computer and their respective roles in computing.</p> <p>CO3: Outline primary memory requirements, dynamic memory allocation, and virtual memory concepts.</p> <p>CO4: Organize files and directories, storage abstraction, directories, and security principles.</p> <p>CO5: Create distributed computing solutions, implement security measures, and configure various operating systems.</p>
Paper-IV : Principal of programming ("through c")	<p>CO1: Clarify problem-solving concepts, C programming history, structure, variables, operators, and IO operations.</p> <p>CO2: Illustrate decision-making and looping constructs in programming, demonstrating comprehension and effective implementation skills.</p> <p>CO3: Apply array concepts: Declare, manipulate one/two-dimensional arrays, handle character arrays, strings, and utilize related functions effectively.</p> <p>CO4: Demonstrate user-defined functions: Create, call functions, including recursion, array passing, demonstrating proficiency.</p> <p>CO5: Built manipulate structures, pointers, and files effectively.</p>


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Paper V : Web Designing and Multimedia	<p>CO1: To Define internet protocols HTTP, FTP, SMTP and browser in relation to world wide web.</p> <p>CO2: To Develop visually appealing web sites using HTML5 and CSS.</p> <p>CO3: To illustrate cascading role in development website controlling layout, design and visual presentation seamlessly.</p> <p>CO4: To Apply to dynamicity into web pages by incorporating basic JavaScript language Objects.</p> <p>CO5: To Defend Java Script Security Controlling Frames in Java Script JavaScript Objects.</p>
Paper-VI : BASIC MATHEMATICS	<p>CO1: To apply mathematical logic for Matrices and determinate.</p> <p>CO2: To Understand sets, relations, functions.</p> <p>CO3: To Usage of logical notations to define and reason about Correlation Analysis and Regression Analysis.</p> <p>CO4: To formulate skill problems of probability.</p> <p>CO5: Capability to solve statistic problem.</p>

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6.2 Mapping : BCA Part-I

Computer Fundamentals and Office Management Tools	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	1	-	1	-	3	2	-	2	2
CO2	3	3	3	-	3	3	2	-	2	2	3	3
CO3	-	3	3	3	2	2	1	3	-	-	2	3
CO4	3	2	2	-	2	1	-	3	-	3	2	1
CO5	3	-	3	3	3	3	3	-	3	3	-	3

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COMPUTER ARCHITECTURE	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	-	2	1	-	3	2	-	2	1
CO2	2	-	3	1	2	3	2	-	2	2	1	3
CO3	3	3	3	-	3	2	1	3	-	-	3	3
CO4	3	2	1	3	2	1	-	3	-	3	2	2
CO5	-	3	-	3	-	2	3	1	3	3	-	-

Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	3	2	1	-	3	-	3	2	2
CO2	3	3	3	3	1	-	-	2	2	3	1	2
CO3	2	-	2	3	3	1	2	2	-	3	-	3
CO4	3	2	3	2	1	-	3	2	3	1	2	2
CO5	3	3	-	3	-	3	-	-	3	-	3	-

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Principal of programming ("through c")	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	-	2	1	-	3	2	-	2	2
CO2	2	-	3	1	2	3	2	-	2	2	1	3
CO3	3	3	3	-	3	2	1	3	-	-	3	3
CO4	3	2	1	3	2	1	-	3	-	3	2	2
CO5	-	3	-	3	-	3	3	-	3	3	-	3

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Web Designing and Multi media	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	2	-	3	-	3	-	3	2	2	3
CO2	3	-	3	3	2	2	2	3	-	-	2	3
CO3	2	2	2	2	2	3	3	1	3	3	3	3
CO4	-	3	2	-	-	-	2	3	2	3	-	2
CO5	-	3	3	3	-	-	3	3	-	3	-	3

BASIC MATHEMATICS	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	2	-	3	3	1	3	2	2	3
CO2	1	-	2	3	-	2	3	3	1	-	2	3
CO3	3	3	3	2	-	1	1	2	2	-	2	3
CO4	3	3	2	-	1	2	3	3	-	3	3	2
CO5	3	3	-	3	-	3	-	3	-	3	3	3

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7.1 BCA Part-II	
Course	Course outcomes:-After completion of these courses students should be able to
Paper : I Business Accounting	CO1: To understand the basics of Bookkeeping & accounting and its application in general business environment. CO2: To get the Knowledge about the important concepts and system of bookkeeping. CO3: To study the application of Ledger accounts and depreciation accounting in the general business environment. CO4: To Explain the Final Accounts used in making business decision. CO5: To apply Final Accounts with Adjustments in regards decision thinking and problem skills.
Paper II : Discrete Mathematics	CO1: To Demonstrate understanding of number systems, radix representation, binomial theorem, mathematical induction, recurrence relations, and generating functions. CO2: To explain sets, relations, functions and discrete structures. CO3: To describe fundamental mathematical concepts such as simplex algorithm, duality, transportation problem. CO4: To develop Skill to formulate problems and solve recurrence relations. CO5: To generate solution of the real world problems using graphs and trees.

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Paper III : Operating System	<p>CO1: Explain OS terminology, evolution, design factors, and device management concepts.</p> <p>CO2: Demonstrate the knowledge of the components of computer and their respective roles in computing.</p> <p>CO3: Outline primary memory requirements, dynamic memory allocation, and virtual memory concepts.</p> <p>CO4: Organize files and directories, storage abstraction, directories, and security principles.</p> <p>CO5: Create distributed computing solutions, implement security measures, and configure various operating systems.</p>

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Paper IV : Database Management System	<p>CO1; Describe the basic elements of a relational database management system.</p> <p>CO2: Demonstrate understanding of ER modeling concepts, notation, constraints, keys, and relational algebra.</p> <p>CO3: Determine entity relationship and convert entity relationship diagrams into RDBMS and formulate SQL queries on the respect data into RDBMS and formulate SQL queries on the data.</p> <p>CO4; Illustrate key notions of query evaluation and optimization techniques.</p> <p>CO5: Formulate normalization for the development of application software's.</p>
Paper V : Web Designing and Multimedia	<p>CO1: Describe the principles of creating an effective web page.</p> <p>CO2: Apply concepts of HTML in web pages by incorporating elements, links, tables, forms, images, frames proficiently.</p> <p>CO3: Assign DHTML features, CSS types, style elements and filter effects.</p> <p>CO4: Build dynamic web pages by incorporating basic JavaScript.</p> <p>CO5: Develop new files and utilize Photoshop and Coral Draw tools.</p>

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Paper VI : Object Oriented Concepts (Through 'C++')	<p>CO1: Describe OOPs evolution, advantages, language characteristics, and compare OOP with functional programming.</p> <p>CO2: Discuss C++ fundamentals: tokens, data types, operators, variables, arrays, statements, expressions.</p> <p>CO3: Differentiate between classes, objects, member functions, constructors, destructors, pointers, access specifiers.</p> <p>CO4: Apply inheritance and polymorphism concepts, types, constructor/destructor usage, function/operator overloading, and virtual functions proficiently.</p> <p>CO5: Demonstrate file management techniques, templates, and exception handling effectively in programming tasks.</p>
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7.2 Mapping : BCA Part II

Business Accounting	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	-	2	-	-	3	2	-	2	-
CO2	2	-	3	-	2	3	2	-	2	2	-	3
CO3	3	3	3	-	3	2	1	3	-	-	3	3
CO4	3	2	-	3	-	-	-	3	-	3	2	2
CO5	3	-	3	-	3	-	-	3	-	-	3	3

Discrete Mathematics	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	3	2	-	3	3	1	3	2	2	3
CO2	1	-	2	3	-	2	3	3	1	-	2	3
CO3	3	3	3	2	-	1	1	2	2	-	2	3
CO4	3	3	2	-	1	2	3	3	-	3	3	2
CO5	3	3	-	3	-	3	-	3	-	3	3	3

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Operating System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	3	2	1	-	3	-	3	2	2
CO2	3	3	3	3	1	-	-	2	2	3	1	2
CO3	2	-	2	3	3	1	2	2	-	3	-	3
CO4	3	2	3	2	1	-	3	2	3	1	2	2
CO5	3	3	-	3	-	3	-	-	3	-	3	-

Database Management System	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	-	2	1	-	3	2	-	2	1
CO2	2	-	3	1	2	3	2	-	2	2	1	3
CO3	3	3	3	-	3	2	1	3	-	-	3	3
CO4	3	2	1	3	2	1	-	3	-	3	2	2
CO5	-	2	-	3	-	-	3	-	3	3	-	1

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Web Designing and Multimedia	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	2	-	3	-	3	-	3	2	2	3
CO2	3	-	3	3	2	2	2	3	-	-	2	3
CO3	2	2	2	2	2	3	3	1	3	3	3	3
CO4	-	3	2	-	-	-	2	3	2	3	-	2
CO5	-	3	3	3	-	-	3	3	-	3	-	3

Object Oriented Concepts (Through 'C++')	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	2	-	2	1	-	3	2	-	2	1
CO2	2	-	3	1	2	3	2	-	2	2	1	3
CO3	3	3	3	-	3	2	1	3	-	-	3	3
CO4	3	2	1	3	2	1	-	3	-	3	2	2
CO5	-	3	-	3	-	-	3	-	3	3	-	2

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8.1 BCA Part-III	
Course	Course outcomes:-After completion of these courses students should be able to
Paper : I Data Structure (using c/c++)	<p>CO1: To describe algorithm Design, characteristics, efficiency analysis, linear structures like arrays, stacks, queues, and their implementations.</p> <p>CO2: To explain linked structures: List representation, operations, insertion, deletion, circular, doubly linked lists, and implementing stacks, queues.</p> <p>CO3: To apply tree structure concepts, binary search tree operations, and algorithms including insertion, deletion, and search.</p> <p>CO4: To practice graph structure using adjacency matrix, adjacency list, Warshall's algorithm, bfs, dfs, and closures.</p> <p>CO5: To illustrate searching techniques: sequential, binary, hashing, and sorting algorithms - selection, bubble, quick, heap, merge, insertion.</p>
Paper II : Networking Technologies	<p>CO1: To Explain network architecture, configuration, types, key components, and differentiating LAN, MAN, WAN, Internet.</p> <p>CO2: To discuss OSI model, physical, data link, network layers, routing, congestion control, transport, application layers.</p> <p>CO3: To Interpret TCP/IP, OSI model comparison, applications, connectionless internetworking, IP multicasting, routing protocols, and more in detail.</p> <p>CO4: To apply concepts: Circuit switching, space-time division, routing, SS7, packet switching, X.25, spread spectrum, data encoding.</p> <p>CO5: To Practice Data Communication, Serial Data formats, error detection, microwave, satellite, optical fiber communication, and more.</p>

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Paper III : System design concepts	<p>CO1: Explain systems development approaches (function, data, object-oriented) and explores methodologies and real-time processing. It covers the (SDLC).</p> <p>CO2: Illustrate the conversion process from Data Flow Diagrams to Structure Charts in the context of structured design.</p> <p>CO3: Apply testing fundamentals create test cases using testing strategies, emphasizing system implementation, maintenance, documentation.</p> <p>CO4: Estimation methods of software Project planning, including the COCOMO Model. Analyze software design, principles and object-oriented concepts.</p> <p>CO5: Analyze development phases of MIS, concept and address pitfalls.</p>
Paper IV : CORE JAVA PROGRAMMING	<p>CO1: Describe Java syntax, object-oriented principles, a foundational understanding of Java structure and concepts.</p> <p>CO2: Demonstrate array manipulation, String operations, class usage, inheritance, package-interface, exception handling in Java.</p> <p>CO3: Apply Java utilities, AWT, Swing, event handling, GUI design, layout management, and inner classes proficiently.</p> <p>CO4: Create Applets, GUIs, and multi-threaded programs for robust Java applications.</p> <p>CO5: Construct Java networking with URL, Sockets, Datagram Sockets, and Collection classes.</p>



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Paper V : E-Commerce	<p>CO1: To understand Electronic Commerce definition, scope, business strategy, B2B components, and EDI fundamentals.</p> <p>CO2: To discuss testing principles, challenges, opportunities, and implementation planning in detail.</p> <p>CO3: To practice E-Payment Systems, E-Marketing, Security in E-Commerce for practical application and proficiency.</p> <p>CO4: To Explain e-banking components, support services, and risks including transaction, credit, liquidity, and strategic risks.</p> <p>CO5: To Estimate M-Commerce business, security features, mobile delivery technology, and applications, emphasizing practical skills in security assessments.</p>
Paper VI : Advanced Technologies of Programming through PHP	<p>CO1: Define PHP: Server-side Scripting, Evaluation, Features, Syntax, Variables, Constants, Data types, Operators, Expressions.</p> <p>CO2: Discuss decision-making, loops, and arrays, including numeric, associative, and multidimensional arrays in PHP.</p> <p>CO3: Apply String operations, including creation, search, and formatting, and PHP function definition and usage.</p> <p>CO4: Estimate form data handling, session management, URL encryption, and exception handling proficiency.</p> <p>CO5: Develop file handling skills (open, close, copy, delete files) database handling (connects, perform basic MySQL operations, and query).</p>



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8.2 Mapping BCA Part-III

Data Structure (using c/c++)	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	3	2	1	-	3	-	3	2	2
CO2	3	3	3	3	1	-	-	2	2	3	1	2
CO3	2	-	2	3	3	1	2	2	-	3	-	1
CO4	3	2	3	2	1	-	3	2	3	1	-	2
CO5	-	3	-	3	-	3	-	-	3	-	3	3

Networking Technologies	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	3	2	-	3	-	3	-	2	2	1	3
CO2	2	-	2	3	-	2	2	3	-	-	2	3
CO3	2	2	2	2	3	3	3	1	3	3	3	3
CO4	3	3	1	-	3	-	2	2	3	1	-	3
CO5	-	3	-	3	3	3	3	-	3	-	3	-

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System design concepts	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	3	2	1	-	3	-	3	2	2
CO2	3	3	3	3	1	-	-	2	2	3	1	2
CO3	2	-	2	3	3	1	2	2	-	3	-	1
CO4	3	2	3	2	1	-	3	2	3	1	-	2
CO5	-	3	-	-	3	3	2	-	3	-	3	-

CORE JAVA PROGRAMMING	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	2	1	-	3	-	2	-	2	2	-	3
CO2	3	-	2	3	-	2	-	3	3	-	2	3
CO3	2	1	2	2	2	3	3	1	3	3	3	3
CO4	2	3	1	-	3	-	2	2	1	1	-	3
CO5	-	-	2	-	3	-	2	-	3	-	3	-

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E-Commerce	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	3	2	1	3	2	1	-	3	-	3	2	2
CO2	-	3	3	-	1	-	2	2	2	3	1	2
CO3	2	-	-	3	3	1	2	1	-	3	-	3
CO4	3	1	3	2	1	2	3	2	3	1	2	-
CO5	3	3	-	2	-	3	-	-	3	-	3	2

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Advanced Technologies of Programming through PHP	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	2	3	-	2	-	1	3	-	3	3	2	3
CO2	3	-	3	3	3	2	2	3	-	-	3	3
CO3	2	2	3	2	2	3	3	2	3	3	3	3
CO4	1	3	3	-	2	-	2	3	2	3	-	3
CO5	3	-	3	3	3	3	-	3	-	3	-	-

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