

**RAJEEV GANDHI GOVT. PG COLLEGE AMBIKAPUR (C.G.)**

**(DEPARTMENT OF COMPUTER APPLICATION)**



**Learning Outcomes based Curriculum  
for  
BACHELOR OF COMPUTER APPLICATION (BCA)**

**SESSION – 2023-24**

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## PROGRAM OUTCOMES:-

1. **Discipline knowledge :** Acquiring knowledge on basics of Computer Science and ability to apply to design principles in the development of solutions for problems of varying complexity
  2. **Problem Solving:** Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibiting a sound knowledge on data structures and algorithms.
  3. **Design and Development of Solutions:** Ability to design and development of algorithmic solutions to real world problems and acquiring a minimum knowledge on statistics and optimization problems. Establishing excellent skills in applying various design strategies for solving complex problems.
  4. **Programming a Computer:** Exhibiting strong skills required to program a computer for various issues and problems of day-to-day applications with through knowledge on programming languages of various levels.
  5. **Application Systems Knowledge:** Possessing a sound knowledge on computer application software and ability to design and develop app for applicative problems.
  6. **Modern Tool Usage:** Identify, select and use a modern scientific and IT tool or technique for modeling, prediction, data analysis and solving problems in the area of Computer Science and making them mobile based application software.
  7. **Industry Familiar:** Student will be able to become industry familiar.
  8. **Project Management:** Practicing of existing projects and becoming independent to launch own project by identifying a gap in solutions.
  9. **Ethics on Profession, Environment and Society:** Exhibiting professional ethics to maintain the integrality in a working environment and also have concern on societal impacts due to computer-based solutions for problems.
  10. **Motivation to take up Higher Studies:** Inspiration to continue educations towards advanced studies on Computer Science.
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## PROGRAM SPECIFIC OUTCOMES (PSOs)

<b>Program Specific Outcome (PSOs)</b>	
PSO1	To prepare students for career in computer science and its application in professional career.
PSO2	To develop the student to cope up with the advancements in respective science field.
PSO3	The student will determine the appropriate level of technology for use in: a) Experimental design and implementation. b) Analysis of experimental data. c) Numerical and mathematical methods in problem solutions.
PSO4	Investigate and apply mathematical problem and solution in a variety of context related to science, technology, business and industry and illustrate these solution using symbolic, numeric or graphical methods.
PSO5	Provide training to students for Programming, designing web pages, web sites-hosting/maintaining, software, database and make them familiar with computer graphics and networks.

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## Graduate Attributes(GA)

<b>G1</b>	Ability to identify a problem, analyzes using design thinking techniques, and evolve innovative approaches for solving it.
<b>G2</b>	Ability to apply mathematical concepts and techniques in problem solving
<b>G3</b>	Ability to function effectively in multicultural teams to accomplish a common goal
<b>G4</b>	Ability to self-learn and engage in life-long learning and upgrade technical skills
<b>G5</b>	An understanding of professional and ethical responsibility
<b>G6</b>	Ability to undertake small research tasks and projects
<b>G7</b>	Exposure to emerging technologies such as DSA, Programming language, Cloud Technology etc.
<b>G8</b>	Understanding of computing systems at computer architecture, operating systems, and distributed computing levels, and how they affect the performance of software applications
<b>G9</b>	Ability to design and apply appropriate algorithms and data structures for evolving efficient computing based solutions for new problems
<b>G10</b>	Understanding of theoretical foundations, fundamental principles, and limits of computing

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**BCA  
( FIRST SEMESTER )**

**COURSE CODE: DSC101**

**COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: COMPUTER FUNDAMENTAL**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer technology.
2. Gain Knowledge about H/w and S/w Concepts with its technology areas.
3. Analyze & learning with MS-DOS & its basic terminology.
4. Understand the importance of windows operating system & its environment.
5. Design & Analyze the basic terminology of network, Internet, communications etc.

<b>BCA I COMPUTER FUNDAMENTAL PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			✓
PO-07					
PO-08					
PO-09				✓	
PO-10					

**BCA**  
**( FIRST SEMESTER )**

**COURSE CODE: DSC102      COURSE TYPE :DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: DISCRETE MATHEMATICS**

**COURSE OUTCOME:**

1. Acquire knowledge of basic mathematics.
2. Gain knowledge statements, connectives, quantifiers.
3. Analyze & learning with proposition and Boolean algebra.
4. Understand the importance of Boolean functions & its environment.
5. Design & Analyze the basic Graph theories & trees.

**BCA I**  
**DISCRETE MATHEMATICS**  
**PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			
PO-07					
PO-08					
PO-09				✓	
PO-10					

**BCA  
( FIRST SEMESTER )**

**COURSE CODE: DSC103      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE:    PC SOFTWARE PACKAGE**

**COURSE OUTCOME:**

1. Acquire knowledge of basic windows operating system.
2. Gain Knowledge while working with MS-Word along with its tools.
3. Analyze & learning with MS-Excel and its applications.
4. Understand the importance of MS-PowerPoint with setting templates and views.
5. Design & Analyze the interactive PowerPoint presentation using all its animations. etc.

**BCA I  
Subject : PC SOFTWARE PACKAGE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓	✓		
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( FIRST SEMESTER )**

**COURSE CODE: GE101**

**COURSE TYPE : GENERIC ELECTIVE (GE)**

**COURSE TITLE: FUNDAMENTAL OF IT**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer Technology.
2. Gain Knowledge about H/w and S/w Concepts with its technology areas.
3. Analyze & learning with operating system & its basic terminology.
4. Understand the importance of Database & its environment.
5. Design & Analyze the basic terminology of network, Internet, communications etc.

**BCA I  
FUNDAMENTAL OF IT (GE)  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02		✓			
PO-03			✓		
PO-04					✓
PO-05					
PO-06					
PO-07					
PO-08				✓	
PO-09					
PO-10					



**BCA  
( FIRST SEMESTER )**

**COURSE CODE: SEC101**

**COURSE TYPE : SKILL ENHANCEMENT COURSE**

**COURSE TITLE : INTRODUCTION TO DIGITAL MARKETING**

**COURSE OUTCOME:**

1. Acquire basic knowledge about digital marketing & technology.
2. Gain Knowledge about Advantages, Disadvantages and Benefits of Digital Marketing.
3. Analyze & learning with Blog and VLog.
4. Understand the importance of Social Media Marketing.
5. Design & Analyze the basic understanding of Affiliate Marketing, Content Marketing, etc.

**BCA I SEM  
Subject : INTRODUCTION TO DIGITAL MARKETING  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			
PO-07	✓				✓
PO-08					
PO-09			✓	✓	
PO-10					

**BCA  
( FIRST SEMESTER )**

**COURSE CODE: VAC101**

**COURSE TYPE : VALUE ADDED COURSE**

**COURSE TITLE: TECHNICAL AWARENESS**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer technology.
2. Gain Knowledge about H/w and S/w Concepts with its technology areas.
3. Analyze & learning with MS-DOS & its basic terminology.
4. Understand the importance of windows operating system & its environment.
5. Design & Analyze the basic terminology of network, Internet, communications etc.

**BCA I SEM  
Subject : TECHNICAL AWARENESS  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04			✓		
PO-05					
PO-06					
PO-07		✓			
PO-08		✓			
PO-09					✓
PO-10					

**BCA  
( SECOND SEMESTER )**

**COURSE CODE: DSC201      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: C LANGUAGE**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer programming language.
2. Gain Knowledge about Procedural Oriented Programming Language.
3. Analyze & learning with C-Programming & its basic terminology.
4. Understand the importance of Array, Functions, Pointer and String.
5. Understand the implementation of Control Structure.

**BCA II  
C-LANGUAGE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02			✓		
PO-03					
PO-04					
PO-05					
PO-06		✓			✓
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( SECOND SEMESTER )**

**COURSE CODE: DSC202      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: OPERATING SYSTEM**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Operating System and its types.
2. Gain Knowledge about Process management.
3. Analyze & learning with Memory management & its basic terminology.
4. Understand the importance of Storage Device.
5. Understand the implementation of Operating System architecture.

**BCA II OPERATING SYSTEM PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					✓
PO-03		✓			
PO-04					
PO-05					
PO-06			✓		
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( SECOND SEMESTER )**

**COURSE CODE: DSC203      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE:    CONCEPT OF SOFTWARE**

**COURSE OUTCOME:**

1. Acquire basic knowledge of software's & its category.
2. Gain Knowledge about H/w and S/w Concepts with its technology areas.
3. Analyze & learning with System Software.
4. Understand the importance of Assembler, Microprocessor & its environment.
5. Understand the implementation of Linkage & Loader.

**BCA II  
CONCEPT OF SOFTWARE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05			✓		
PO-06					
PO-07					
PO-08					
PO-09				✓	
PO-10					

**BCA  
( SECOND SEMESTER )**

**COURSE CODE: GE201**

**COURSE TYPE : GENERIC ELECTIVE COURSE**

**COURSE TITLE: BASIC OF COMPUTER NETWORKING**

**COURSE OUTCOME:**

1. Acquire basic knowledge of computer networks & its terminology.
2. Gain Knowledge about LAN, MAN, WAN.
3. Analyze & learning with internet, intranet, extranet & its basic terminology.
4. Understand the importance of transmission media.
5. Understand the working of Client-Server Model along with TCP/IP.

**BCA II  
BASIC OF COMPUTER NETWORKING (GEC)  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03			✓		
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

<b>BCA</b> <b>( SECOND SEMESTER )</b>	
<b>COURSE CODE: SEC201</b>	<b>COURSE TYPE : SKILL ENHANCEMENT COURSE</b>
<b>COURSE TITLE: FUNDAMENTALS OF IOT</b>	
<b>COURSE OUTCOME:</b>	
<ol style="list-style-type: none"> <li>1. Acquire knowledge of basic computer technology .</li> <li>2. Gain Knowledge about fundamental of IoT with its technology areas.</li> <li>3. Analyze &amp; learning with Architecture &amp; Iot devices.</li> <li>4. Understand the importance of IoT layers &amp; its protocol environment.</li> <li>5. Design &amp; Analyze the basic terminology of network, design methodology &amp; Building Blocks.</li> </ol>	

<b>BCA II SEM</b> <b>Subject : FUNDAMENTAL OF IOT</b> <b>PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			
PO-07		✓			
PO-08					
PO-09			✓		
PO-10					

**BCA  
( SECOND SEMESTER )**

**COURSE CODE: VAC201**

**COURSE TYPE : VALUE ADDED COURSE**

**COURSE TITLE: BASIC CONCEPT OF DATABASE**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Database & History.
2. Gain Knowledge about types, advantages and importance of database.
3. Analyze & learning with MS Access database.
4. Understand the importance of Data import & export AND different types of database.
5. Understand the implementation of Cloud Database.

<b>BCA II SEM</b> <b>Subject : BASIC CONCEPT OF DATABASE</b> <b>PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02		✓			
PO-03			✓		
PO-04					
PO-05					
PO-06					
PO-07					
PO-08				✓	
PO-09					✓
PO-10					



**BCA  
( THIRD SEMESTER )**

**COURSE CODE: DSC301      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: DIGITAL ELECTRONICS**

**COURSE OUTCOME:**

1. Acquire knowledge of basic digital signal and numbering system.
2. Gain Knowledge about Logic gates and their families.
3. Analyze & learning with theorems and Boolean algebra.
4. Understand the importance of truth table and Boolean expression.
5. Understand the implementation combinational and sequential circuit.

<b>BCA III DIGITAL ELECTRONICS PO-CO Mapping</b>					
<b>CO PO</b>	<b>CO-01</b>	<b>CO-02</b>	<b>CO-03</b>	<b>CO-04</b>	<b>CO-05</b>
PO-01	✓				
PO-02					
PO-03			✓		
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: DSC302      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: COMPUTER NETWORKS**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer network.
2. Gain Knowledge about TCP/IP Model.
3. Analyze & learning with different layers of network.
4. Understand the importance of computer network architecture.
5. Understand the implementation of computer network protocols.

**BCA IIICOMPUTER NETWORKSPO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03			✓		
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: DSC303      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: DATA STRUCTURE**

**COURSE OUTCOME:**

1. Acquire knowledge of basic data structure.
2. Gain knowledge about algorithm & its operation.
3. Analyze & learning with various types of searching sorting techniques.
4. Understand the importance of algorithms.
5. Understand the implementation of different data structure and techniques using its operations.

**BCA III  
DATA STRUCTURE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02	✓				
PO-03				✓	
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: DSE301**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: E-COMMERCE**

**COURSE OUTCOME:**

1. Acquire knowledge of E-commerce including its size, growth and future.
2. Gain Knowledge about Emergence of E-commerce.
3. Analyze & learning with Internet security its basic terminology in E-commerce.
4. Understand the importance of business practices using E-commerce.
5. Understand the working statics of HTML web design.

**BCA III  
E-COMMERCE  
PO-CO Mapping**

CO	PO	CO-01	CO-02	CO-03	CO-04	CO-05
	PO-01	✓				
	PO-02					
	PO-03					
	PO-04					
	PO-05		✓			
	PO-06					✓
	PO-07					
	PO-08					
	PO-09					
	PO-10					

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: DSE302**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: PROBLEM SOLVING TECHNIQUES**

**COURSE OUTCOME:**

1. Acquire knowledge of basic algorithms and functions.
2. Gain Knowledge about Procedural Oriented Programming Language.
3. Analyze & learning with C-Programming & its basic terminology.
4. Understand the importance of Factoring methods.
5. Understand the implementation of merging and sorting.

**BCA III  
PROBLEM SOLVING TECHNIQUES  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					✓
PO-03					
PO-04		✓	✓		
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: DSE303**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: INTERNET TECHNOLOGIES**

**COURSE OUTCOME:**

1. Acquire knowledge of internet and intranet.
2. Gain Knowledge about domain name system and networking tools.
3. Analyze & learning with Internet protocols.
4. Understand the importance of web server.
5. Understand the implementation of Search Engines.

<b>BCA III INTERNET TECHNOLOGIES PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					✓
PO-04					
PO-05					
PO-06		✓			
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: SEC301**

**COURSE TYPE : SKILL ENHANCEMENT COURSE**

**COURSE TITLE: MULTIMEDIA AND ANIMATION**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Multimedia and Animation.
2. Gain Knowledge about multimedia in DOS, Windows and Linux.
3. Analyze & learning with Multimedia elements in PowerPoint.
4. Understand the importance of Basic of Animation, Principle and effects.
5. Understand the implementation of Multimedia on Web.

**BCA III SEM  
Subject : MULTIMEDIA AND ANIMATION  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03		✓			
PO-04					
PO-05				✓	
PO-06				✓	
PO-07					
PO-08					✓
PO-09					✓
PO-10					

**BCA  
( THIRD SEMESTER )**

**COURSE CODE: VAC301**

**COURSE TYPE : VALUE ADDED COURSE**

**COURSE TITLE: INTRODUCTION TO DATA WAREHOUSE AND DATA MINING**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Raw Data.
2. Gain knowledge about valuable information and Data warehouse.
3. Analyze & learning with Data mart and building block.
4. Understand the importance of Data kind and its functionality.
5. Understand the implementation of Data mining system.

**BCA III SEM  
Subject : INTRODUCTION TO DATA WAREHOUSE AND DATA MINING  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02	✓				
PO-03		✓			
PO-04					
PO-05					
PO-06					
PO-07			✓		
PO-08					✓
PO-09					
PO-10					



**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: DSC401      COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: OBJECT ORIENTED PROGRAMMING USING C++**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer programming language.
2. Gain Knowledge about Object Oriented Programming Language.
3. Analyze & learning with C++ Programming & its basic terminology.
4. Understand the importance of Data binding, functions and creating objects.
5. Understand the implementing concept of overloading and operator.

<b>BCA IV OBJECT ORIENTED PROGRAMMIN USING C++ PO-CO Mapping</b>					
<b>CO PO</b>	<b>CO-01</b>	<b>CO-02</b>	<b>CO-03</b>	<b>CO-04</b>	<b>CO-05</b>
PO-01	✓				
PO-02					
PO-03					
PO-04		✓	✓		
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: DSC402**

**COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: COMPUTER GRAPHICS AND MULTIMEDIA**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer graphics and multimedia tools.
2. Gain Knowledge about Graphics software and algorithms.
3. Analyze & learning with 2-D & 3-D transformation with its basic terminology.
4. Understand the importance of multimedia and Photoshop software.
5. Understand the implementation of CorelDraw with its tools.

**BCA IVCOMPUTER GDRAPHS AND MULTIMEDIAPO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02		✓			
PO-03					
PO-04					
PO-05					
PO-06			✓		✓
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: DSC403**

**COURSE TYPE : DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: COMPUTER ORGANISATION AND ARCHITECTURE**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer organization and architecture.
2. Gain Knowledge about pipeline and memory hierarchy.
3. Analyze & learning with Parallel Computer Models & Program parallelism.
4. Understand the importance of Synchronous parallel processing.
5. Understand the implementation of System Interconnection.

**BCA IV  
COMPUTER ORGANIZATION AND ARCHITECTURE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03		✓			✓
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: DSE401**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: MOBILE COMPUTING**

**COURSE OUTCOME:**

1. Acquire knowledge of basic mobile computing.
2. Gain Knowledge about mobile computing architecture.
3. Analyze & learning with Android & its basic terminology.
4. Understand the importance of Android GUI and its activities.
5. Understand the implementation of Advance UI Programming.

**BCA IV  
MOBILE COMPUTING  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓	✓			
PO-02					
PO-03					
PO-04			✓		
PO-05					
PO-06					
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: DSE402**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: CLOUD COMPUTING**

**COURSE OUTCOME:**

1. Acquire knowledge of basic cloud computing.
2. Gain Knowledge about cloud insight and its scenarios. .
3. Analyze & learning with Cloud architecture, Layers & models.
4. Understand the importance of cloud deployment model.
5. Understand the implementation of Cloud simulator and green cloud.

**BCA IV  
CLOUD COMPUTING  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓	✓			
PO-02					
PO-03					
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: DSE403**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: INTERNET OF THINGS**

**COURSE OUTCOME:**

1. Acquire knowledge of basic IOT concept and tools.
2. Gain Knowledge about sensors, actuators and interfacing.
3. Analyze the working of Machine Learning & Big data analytics.
4. Understand the importance of Edge Streaming Analytics & Network Analytics.
5. Understand the working of Physical server IOT and cloud.

<b>BCA IV INTERNET OF THINGS PO-CO Mapping</b>					
<b>CO PO</b>	<b>CO-01</b>	<b>CO-02</b>	<b>CO-03</b>	<b>CO-04</b>	<b>CO-05</b>
PO-01	✓	✓			
PO-02					
PO-03					
PO-04					
PO-05					
PO-06			✓	✓	
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: SEC401**

**COURSE TYPE : SKILL ENHANCEMENT COURSE**

**COURSE TITLE: FUNDAMENTAL OF WEB DEVELOPMENT**

**COURSE OUTCOME:**

1. Acquire knowledge of basic web development language.
2. Gain knowledge about HTML5 and CSS.
3. Analyze & learning with HTML table, form audio and video.
4. Understand the importance of CSS selectors and CSS designer.
5. Understand the implementing concept of Java script in real world programming.

**BCA IV SEM  
Subject : FUNDAMENTAL OF WEB DEVELOPMENT  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02	✓				
PO-03					
PO-04		✓			
PO-05					
PO-06					
PO-07			✓		
PO-08				✓	
PO-09				✓	✓
PO-10					

**BCA  
( FOURTH SEMESTER )**

**COURSE CODE: VAC401**

**COURSE TYPE : VALUE ADDED COURSE**

**COURSE TITLE: DATA SCIENCE**

**COURSE OUTCOME:**

1. Acquire knowledge of Data Science.
2. Gain knowledge about big data in Data Science.
3. Analyze & learning with challenges of big data & its characteristics.
4. Understand the importance of Big data architecture and data evolution..
5. Understand the implementing concept of Hadoop.

**BCA IV SEM  
Subject : DATA SCIENCE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03		✓			
PO-04					
PO-05					
PO-06			✓		
PO-07			✓		
PO-08					✓
PO-09					
PO-10					



**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: DSC501**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: DATABASE DESIGN AND RDBMS**

**COURSE OUTCOME:**

1. Acquire knowledge of basic Database design and RDBMS.
2. Gain Knowledge about Relational Model.
3. Analyze & learning with Database design concept.
4. Understand the importance of Normal forms.
5. Understand the implementation of Transaction Processing techniques.

<b>BCA V DATABASE DESIGN AND RDBMS PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓	✓			
PO-02					
PO-03					
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: DSC502**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE : SOFTWARE ENGINEERING**

**COURSE OUTCOME:**

1. Acquire knowledge of basic Software Engineering and process model.
2. Gain Knowledge about Design Engineering and requirements.
3. Analyze & learning with Architectural design, pattern & its basic terminology.
4. Understand the importance of testing strategies and matrices.
5. Understand the implementation of Testing & techniques.

**BCA V SOFTWARE ENGINEERING PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓	✓			
PO-02					
PO-03					
PO-04					
PO-05					
PO-06			✓		✓
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: DSC503**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: ARTIFICIAL INTELLIGENCE**

**COURSE OUTCOME:**

1. Acquire overview of basic Artificial Intelligence.
2. Gain Knowledge about problem solving and search strategies.
3. Analyze & learning with structured knowledge & its basic terminology.
4. Understand the importance of knowledge representation.
5. Understand the implementation of Learning, Planning and Perception.

**BCA V  
ARTIFICIAL INTELLIGENCE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓	✓			
PO-02					
PO-03			✓		
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA**  
**( FIFTH SEMESTER )**

**COURSE CODE: DSE501**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: PROGRAMMING IN JAVA**

**COURSE OUTCOME:**

1. Acquire knowledge of Object Oriented Programming Language.
2. Gain Knowledge about features, methods, class etc.
3. Analyze & learning with Inheritance, Package & Interface.
4. Understand the importance of Data binding, functions and creating objects.
5. Understand the working of TCP/IP, Sockets & JDBC.

<b>BCA V</b> <b>PROGRAMMING IN JAVA</b> <b>PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02					
PO-03					
PO-04	✓	✓			
PO-05				✓	
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: DSE502**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: NUMERICAL ANALYSIS**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Math's and polynomial.
2. Gain Knowledge about Transcendental Algebraic Equations.
3. Analyze & learning with Simultaneous Equations and Matrix.
4. Understand the importance of Interpolation - Single Variable Functions.
5. Understand the implementation Numerical differentiation and integration.

**BCA V  
NUMERICAL ANALYSIS  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02		✓			
PO-03			✓		
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: DSE503**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: PROGRAMMING IN VISUAL BASIC**

**COURSE OUTCOME:**

1. Acquire basic knowledge of event driven programming language.
2. Gain Knowledge about Procedural Oriented Programming Language.
3. Analyze & learning with C-Programming & its basic terminology.
4. Understand the importance of variable, procedure and control structure.
5. Understand the working of file system and error handling.

<b>BCA V PROGRAMMING IN VISUAL BASIC PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02					
PO-03					
PO-04	✓	✓			
PO-05			✓		
PO-06					
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: GE501**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE : INTRODUCTION TO SOFTWARE ENGINEERING**

**COURSE OUTCOME:**

1. Acquire knowledge of basic Software Engineering and languages.
2. Gain Knowledge about Frontend, Backend and database.
3. Analyze & learning with Process Model with its terminology.
4. Understand the importance of SDLC Life Cycle.
5. Understand the implementation of Software testing & deployment.

**BCA V  
INTRODUCTION TO SOFTWARE ENGINEERING  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04		✓			
PO-05					
PO-06					
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( FIFTH SEMESTER )**

**COURSE CODE: VAC501**

**COURSE TYPE: SKILL ENHANCEMENT COURSE**

**COURSE TITLE: FUNDAMENTAL OF ANDROID**

**COURSE OUTCOME:**

1. Acquire knowledge of basic of Android.
2. Gain Knowledge about modules of Android.
3. Analyze & learning with API concept of Android.
4. Understand the importance of Android architecture.
5. Understand the implementation of Android Apps in real world.

**BCA V SEM  
Subject : FUNDAMENTAL OF ANDROID  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			
PO-07			✓		
PO-08				✓	
PO-09					✓
PO-10					



**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: DSC601**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: .NET TECHNOLOGY**

**COURSE OUTCOME:**

1. Acquire basic knowledge of dot net programming language.
2. Gain knowledge about data control and dot net framework.
3. Analyze & learning with ASP.Net & its basic terminology.
4. Understand the importance of database linking with languages.
5. Understand the implementation of navigation control & validation.

<b>BCA VI .NET TECHNOLOGY PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01		✓			
PO-02					
PO-03					
PO-04	✓			✓	
PO-05					
PO-06					
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: DSC603**

**COURSE TYPE: DISCIPLINE SPECIFIC CORE COURSE**

**COURSE TITLE: NETWORK SECURITY**

**COURSE OUTCOME:**

1. Acquire basic knowledge of network security.
2. Gain knowledge about Conventional and Encryption Principles
3. Analyze & learning with public key and cryptography principles.
4. Understand the importance of IP Security.
5. Understand the implementation of various Layers and SET.

**BCA VI  
NETWORK SECURITY  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03		✓			
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: DSE601**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: PYTHON PROGRAMMING**

**COURSE OUTCOME:**

1. Acquire basic knowledge of python programming.
2. Gain knowledge about operators, expression and control structure.
3. Analyze & learning with Functions and Data structures.
4. Understand the importance of File Handling using class and objects.
5. Understand the implementation of Advance Python and Functional programming.

**BCA VI  
PYTHON PROGRAMMING  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02			✓		
PO-03					
PO-04		✓			✓
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					

**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: DSE602**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE : THEORY OF COMPUTATION**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Theory of computation.
2. Gain Knowledge about Automata theory and its applications.
3. Analyze & learning with Regular expression.
4. Understand the importance of Context-free grammars.
5. Understand the working of Turing machine and computers.

**BCA VI  
THEORY OF COMPUTATION  
PO-CO Mapping**

CO	PO	CO-01	CO-02	CO-03	CO-04	CO-05
	PO-01	✓				
	PO-02					
	PO-03			✓		
	PO-04					
	PO-05					
	PO-06					
	PO-07					
	PO-08					
	PO-09					
	PO-10					✓

**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: DSE603**

**COURSE TYPE : DISCIPLINE ELECTIVE COURSE**

**COURSE TITLE: MACHINE LEARNING**

**COURSE OUTCOME:**

1. Acquire basic knowledge of Machine Learning and its types.
2. Gain Knowledge about Algorithms and tests.
3. Analyze & learning with Theories and network.
4. Understand the importance of clustering.
5. Understand the implementation of performance evaluation of algorithms.

<b>BCA VI MACHINE LEARNING PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02		✓			
PO-03					
PO-04					
PO-05					
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: GE601**

**COURSE TYPE : GENERAL ELECTIVE COURSE**

**COURSE TITLE: INTRODUCTION TO ANDROID**

**COURSE OUTCOME:**

1. Acquire knowledge of basic computer programming language.
2. Gain Knowledge about android Programming.
3. Analyze & learning with mobile computing & its basic terminology.
4. Understand the importance of Activity Life-Cycle and UI Design.
5. Understand the implementation of android app using UI designing..

<b>BCA VI INTRODUCTION TO ANDROID PO-CO Mapping</b>					
CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04		✓			
PO-05					
PO-06			✓		
PO-07					
PO-08					✓
PO-09					
PO-10					

**BCA  
( SIXTH SEMESTER )**

**COURSE CODE: SEC601**

**COURSE TYPE: SKILL ENHANCEMENT COURSE**

**COURSE TITLE: FUNDAMENTAL OF CYBER SECURITY**

**COURSE OUTCOME:**

1. Acquire knowledge of basic Cyber Security.
2. Gain Knowledge about Cyber Crime & its security.
3. Analyze & learning with Digital Signature, Antivirus and Firewall.
4. Understand the importance of Social Media Security.
5. Understand the accessing of internet with smart phone with its security.

**BCA VI SEM  
Subject : FUNDAMENTAL OF CYBER SECURITY  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03		✓			
PO-04			✓		
PO-05					
PO-06				✓	
PO-07					
PO-08					
PO-09					✓
PO-10					

**DEPARTMENT OF COMPUTER APPLICATION**  
**RAJEEV GANDHI GOVT PG COLLEGE AMBIKAPUR (CG)**

Course Code	Course Title	Description	Relevance				
			Global	National	Regional	Local	
BCA I SEM	BCA101	COMPUTER FUNDAMENTAL	Basics of computer, Input Out Devices, Hard/ Soft Copy, Storage Devices, Operating System- MS DOS, Winodow Operating System	✓	✓		✓
	BCA102	DISCRETE MATHEMATICS	Proposition, Boolean Algebra and function , Set Theory, Graph Theory,	✓	✓		
	BCA103	PC SOFTWARE PACKAGE	Windows 7, MS-Word, MS-Excel, MS-Power Point	✓	✓	✓	✓
	BCA104	FUNDAMENTAL OF IT (GE)	Introduction to logical organization of computer, User Interface, Database, Networks, Internet Application	✓	✓	✓	✓
BCA II SEM	BCA201	C - LANGUAGE	C Programming concept, Control and branch handling, Array, String, Structure, Union, Function and Pointers	✓	✓		
	BCA202	OPERATING SYSTEM	Introduction to Opearting System, Process Management, Memory Management, Device and Storage Management	✓	✓	✓	✓
	BCA203	CONCEPT OF SOFTWARE	Application Software, Sytem Software, Assembler, Microprocessor, Linker, Loader	✓	✓		✓
	BCA204	BASICS OF COMPUTER NETWORKING	Computer Network, Transmission Media, Network Model, Topology, Internet Term	✓	✓	✓	✓
	BCA301	DIGITAL ELECTRONICS	Background of digital network, Logic Families, Boolean Algebra, Karnaugh Maps, Combinational and Sequential Circuit	✓	✓		



Course Code		Course Title	Description	Relevance			
				Global	National	Regional	Local
BCA III SEM	BCA302	COMPUTER NETWORKS	Introduction to Computer Network, OSI Reference Model, Various Layer, Common network architecture, Protocol, Internet	✓	✓	✓	✓
	BCA303	DATA STRUCTURE	Introduction to array, Linked list, Stack, Queue, Binary Tree, Searching and Sorting, Analysis of algorithm.	✓			
	BCA304	E-COMMERCE	Introduction to E-commerce, internet security and e-commerce, business model, HTML basic, Website design principles	✓	✓	✓	✓
	BCA305	PROBLEM SOLVING TECHNIQUE	Role of computer in algorithm, C-language basic, Factoring method, margining	✓			
	BCA306	INTERNET TECHNOLOGY	Working of internet, IP address, subnet mask, Internet protocol, Search engine	✓	✓	✓	✓
BCA IV SEM	BCA401	OBJECT ORIENTED PROGRAMMING USING C++	OOPs vs Procedure oriented programming, class and object, Decision control, binding data and function, Operator overloading, overriding,	✓	✓		
	BCA402	COMPUTER GRAPHICS AND MULTIMEDIA	Introduction to graphic system, 2D transformation, 3D transformation, Multimedia, Photoshop, CorelDraw.	✓	✓	✓	✓
	BCA403	COMPUTER ORGANIZATION AND ARCHITECTURE	Pipeline, Memory hierarchy and I/O organization, Parallel computer model Program parallelism, Synchronous Parallel Processing, System Interconnection.	✓	✓		
	BCA404	MOBILE COMPUTING	Introduction to mobile computing, introduction to Android, Android activities, GUI Design concept, Advance UI programming	✓	✓	✓	✓
	BCA405	CLOUD COMPUTING	Cloud Computing overview, cloud insight, cloud architecture-layer and model, Cloud simulators-Cloud Sim and Green Cloud	✓	✓	✓	✓
	BCA406	INTERNET OF THINGS	Introduction to IoT, Sensor, Actuators and interfacing, data and analytics for IoT, IoT physical servers, and cloud offering.	✓	✓	✓	✓

Course Code	Course Title	Description	Relevance				
			Global	National	Regional	Local	
BCA V SEM	BCA501	DATABASE DESIGN AND RDBMS	Introduction to DBMS, Relational model and RDBMS, Database design and concept, Transaction processing.	✓	✓		
	BCA502	SOFTWARE ENGINEERING	Software engineering and process model, Requirement and design engineering, Testing strategies and Products metrics, plan for testing.	✓	✓		
	BCA503	ARTIFICIAL INTELLIGENCE	Overview of Artificial Intellegence, problem solving and searching strategies, Knowledge representation , reasoning and structured knowledge, learning and planning.	✓	✓	✓	✓
	BCA504	PROGRAMMING IN JAVA	OOPs feature, Inheritance, Package and Interface, Exception handling, Multithread programming, input output basic stream, Networking, Applets.	✓	✓		
	BCA505	NUMERICAL ANALYSIS	Solution of Polynomial an Transcendental algebraic equation, simultaneous equations and matrix, Interpolation-single variable function, Numerical differentiation and integration.	✓	✓		
	BCA506	PROGRAMMING IN VISUAL BASIC	Introduction to visual basic, Creating Program, Controlling program execution, working with control, Error trapping and debugging, sequential and random files.	✓	✓		
	BCA507	INTRODUCTION TO SOFTWARE ENGINEERING (GEC)	Introduction to software, process model, SDLC, testing , Deployment.	✓	✓		
	BCA601	.NET TECHNOLOGY	Progrrming with C#.net , VB.net, ASP.net, and database	✓	✓		
	BCA602	DATA MINING AND WAREHOUSING	Overview and concept of datamining and warehousing, data design and data representation, information access and delivery , data mining and web mining.	✓	✓		
	BCA603	NETWORK SECURITY	Fundamental of Network Security, Conventional and Encryption principle, public key, cryptography principle, IP security overview.	✓	✓	✓	✓

Course Code		Course Title	Description	Relevance			
				Global	National	Regional	Local
BCA VI SEM	BCA604	PYTHON PROGRAMMING	Introduction to python programming, Interpreter, Operator and expression, function, file handling, advance python.	✓	✓		
	BCA605	THEORY OF COMPUTATION	Introduction to finite automata, regular expression, context-free grammars, deterministic pushdown automata, The turing machine,	✓	✓		
	BCA606	MACHINE LEARNING	Introduction to machine learning, bayesian and instance based learning, unsupervised learning and dimensionality reduction, measure for performance evaluation of ML algorithm.	✓	✓	✓	✓
	BCA607	INTRODUCTION TO ANDROID	Introduction to mobile computing, introduction to Android, Android activities, GUI Design concept, Advance UI programming	✓	✓	✓	✓

**RAJEEV GANDHI GOVT. PG COLLEGE AMBIKAPUR (C.G.)**

**(DEPARTMENT OF COMPUTER APPLICATION)**



**Learning Outcomes based Curriculum  
for  
POST GRADUATE DIPLOMA OF COMPUTER APPLICATION (PGDCA)**

**SESSION-2023-24**

**Website:<http://www.rgpgcapur.in>/E-mail-[rgpg.apur1960@gmail.com](mailto:rgpg.apur1960@gmail.com)/Phone:07774-230921**

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## **PROGRAM OUTCOMES :-**

1. **Discipline knowledge :** Acquiring knowledge on basics of Computer Science and ability to apply to design principles in the development of solutions for problems of varying complexity
2. **Problem Solving:** Improved reasoning with strong mathematical ability to Identify, formulate and analyze problems related to computer science and exhibiting a sound knowledge on data structures and algorithms.
3. **Design and Development of Solutions:** Ability to design and development of algorithmic solutions to real world problems and acquiring a minimum knowledge on statistics and optimization problems. Establishing excellent skills in applying various design strategies for solving complex problems.
4. **Programming a Computer:** Exhibiting strong skills required to program a computer for various issues and problems of day-to-day applications with through knowledge on programming languages of various levels.
5. **Application Systems Knowledge:** Possessing a sound knowledge on computer application software and ability to design and develop app for applicative problems.
6. **Modern Tool Usage:** Identify, select and use a modern scientific and IT tool or technique for modeling, prediction, data analysis and solving problems in the area of Computer Science and making them mobile based application software.
7. **Industry Familiar:** Student will be able to become industry familiar.
8. **Project Management:** Practicing of existing projects and becoming independent to launch own project by identifying a gap in solutions.
9. **Ethics on Profession, Environment and Society:** Exhibiting professional ethics to maintain the integrity in a working environment and also have concern on societal impacts due to computer-based solutions for problems.
10. **Motivation to take up Higher Studies:** Inspiration to continue educations towards advanced studies on Computer Science.

## PROGRAM SPECIFIC OUTCOMES (PSOs)

<b>Program Specific Outcome (PSOs)</b>	
PSO1	To prepare students for career in computer science and its application in professional career.
PSO2	To develop the student to cope up with the advancements in respective science field.
PSO3	The student will determine the appropriate level of technology for use in: a) Experimental design and implementation. b) Analysis of experimental data. c) Numerical and mathematical methods in problem solutions.
PSO4	Investigate and apply mathematical problem and solution in a variety of context related to science, technology, business and industry and illustrate these solution using symbolic, numeric or graphical methods.
PSO5	Provide training to students for Programming, designing web pages, web sites-hosting/maintaining, software, database and make them familiar with computer graphics and networks.

## Graduate Attributes(GA)

<b>G1</b>	Ability to identify a problem, analyze using design thinking techniques, and evolve innovative approaches for solving it.
<b>G2</b>	Ability to apply mathematical concepts and techniques in problem solving
<b>G3</b>	Ability to function effectively in multicultural teams to accomplish a common goal
<b>G4</b>	Ability to self-learn and engage in life-long learning and upgrade technical skills
<b>G5</b>	An understanding of professional and ethical responsibility
<b>G6</b>	Ability to undertake small research tasks and projects
<b>G7</b>	Exposure to emerging technologies such as DSA, Programming language, Cloud Technology etc.
<b>G8</b>	Understanding of computing systems at computer architecture, operating systems, and distributed computing levels, and how they affect the performance of software applications
<b>G9</b>	Ability to design and apply appropriate algorithms and data structures for evolving efficient computing based solutions for new problems
<b>G10</b>	Understanding of theoretical foundations, fundamental principles, and limits of computing

• **PGDCA (SEMESTER - I)**

Course Code	Course (Paper/Subjects)	Theory Marks		Internal Marks		Practical Marks		Project Marks		Total	
		Max.	Min.	Max.	Min.	Min.	Max.	Min.	Max.	Min.	Max.
<b>PGDCA 101</b>	Introduction to Software Organization	<b>70</b>	<b>25</b>	<b>30</b>	<b>11</b>	-	-	-	-	<b>100</b>	<b>40</b>
<b>PGDCA 102</b>	PC Package	<b>70</b>	<b>25</b>	<b>30</b>	<b>11</b>	-	-	-	-	<b>100</b>	<b>40</b>
<b>PGDCA 103</b>	Programming in 'C' & 'C++'	<b>70</b>	<b>25</b>	<b>30</b>	<b>11</b>	-	-	-	-	<b>100</b>	<b>40</b>
<b>PGDCA 104</b>	Practical Based on (PGDCA 102)	-	-	-	-	<b>25</b>	<b>9</b>	-	-	<b>25</b>	<b>9</b>
<b>PGDCA 105</b>	Practical Based on (PGDCA 103)	-	-	-	-	<b>25</b>	<b>9</b>	-	-	<b>25</b>	<b>9</b>
	<b>TOTAL</b>									<b>350</b>	



**PGDCA  
(FIRST SEMESTER)**

**COURSE CODE: PGDCA101**

**COURSE TITLE: INTRODUCTION TO SOFTWARE ORGANISATION**

**COURSE OUTCOME :**

1. Acquire knowledge of basic computer technology.
2. Gain Knowledge about H/w and S/w Concepts with its technology areas.
3. Analyze & learning with Internet, network & its basic terminology.
4. Understand the importance of operating system & its environment.
5. Design & Analyze the basic knowledge of Linux etc.

**PGDCA I  
INTRODUCTION TO SOFTWARE ORGANISATION  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			✓
PO-07					
PO-08					
PO-09				✓	
PO-10					

**PGDCA  
(FIRST SEMESTER)**

**COURSE CODE: PGDCA102**

**COURSE TITLE: PC PACKAGE**

**COURSE OUTCOME:**

1. Acquire knowledge of basic windows operating system.
2. Gain Knowledge while working with MS-Word along with its tools.
3. Analyze & learning with MS-Excel and its applications.
4. Understand the importance of MS-PowerPoint with setting templates and views.
5. Design & Analyze the interactive PowerPoint presentation using all its animations. etc.

**PGDCA I  
PC PACKAGE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓	✓		
PO-07					
PO-08					✓
PO-09					
PO-10					

**PGDCA  
(FIRST SEMESTER)**

**COURSECODE : PGDCA103**

**COURSETITLE: PROGRAMMING IN 'C' & 'C++'**

**COURSE OUTCOME :**

1. . Acquire knowledge of basic computer programming language.
2. Gain Knowledge about Procedural Oriented Programming Language.
3. Analyze & learning with C-Programming & its basic terminology.
4. Understand the importance of Array, Functions, Pointer and String.
5. Understand the Class and Object.

**PGDCA I  
PROGRAMMING IN 'C' & 'C++'  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02			✓		
PO-03					
PO-04					
PO-05					
PO-06		✓			✓
PO-07					
PO-08					
PO-09					
PO-10					

- **PGDCA (SEMESTER - II)**

Course Code	Course (Paper/Subjects)	Theory Marks		Internal Marks		Practical Marks		Project Marks		Total	
		Max.	Min.	Max.	Min.	Min.	Max.	Min.	Max.	Min.	Max.
<b>PGDCA 201</b>	Programming in JAVA	<b>70</b>	<b>25</b>	<b>30</b>	<b>11</b>	-	-	-	-	<b>100</b>	<b>40</b>
<b>PGDCA 202</b>	DBMS (SQL/Oracle)	<b>70</b>	<b>25</b>	<b>30</b>	<b>11</b>	-	-	-	-	<b>100</b>	<b>40</b>
<b>PGDCA 203</b>	Essential of E-Commerce	<b>70</b>	<b>25</b>	<b>30</b>	<b>11</b>	-	-	-	-	<b>100</b>	<b>40</b>
<b>PGDCA 204</b>	Practical Based on (PGDCA 201)	-	-	-	-	<b>25</b>	<b>9</b>	-	-	<b>25</b>	<b>9</b>
<b>PGDCA 205</b>	Practical Based on (PGDCA 202)	-	-	-	-	<b>25</b>	<b>9</b>	-	-	<b>25</b>	<b>9</b>
<b>PGDCA 206</b>	Project Work					-	-	<b>100</b>	<b>40</b>	<b>100</b>	<b>40</b>
	<b>TOTAL</b>									<b>450</b>	

**PGDCA  
(SECOND SEMESTER)**

**COURSE CODE : PGDCA201**

**COURSE TITLE: PROGRAMMING IN JAVA**

**COURSE OUTCOME :**

1. Acquire knowledge of Object Oriented Programming Language.
2. Gain Knowledge about features, methods, class etc.
3. Analyze & learning with Inheritance, Package & Interface.
4. Understand the importance of Data binding, functions and creating objects.
5. Understand the working of TCP/IP, Sockets & JDBC.

**PGDCA II  
PROGRAMMING IN JAVA  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02					
PO-03					
PO-04	✓	✓			
PO-05				✓	
PO-06					
PO-07					
PO-08					
PO-09					
PO-10					✓

**PGDCA  
(SECOND SEMESTER)**

**COURSE CODE : PGDCA202**

**COURSE TITLE : DBMS (SQL/ORACLE)**

**COURSE OUTCOME:**

1. . Acquire knowledge of basic Database design.
2. Gain Knowledge about Relational Model.
3. Analyze & learning with Database design concept.
4. Understand the importance of Normal forms.
5. Understand the implementation of Transaction Processing techniques.

**PGDCA II  
DBMS (SQL/ORACLE)  
PO-COMapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01					
PO-02					
PO-03					
PO-04					
PO-05					
PO-06		✓			
PO-07	✓				✓
PO-08					
PO-09			✓	✓	
PO-10					

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**PGDCA  
(SECOND SEMESTER)**

**COURSE CODE : PGDCA203**

**COURSE TITLE: ESSENTIAL OF E-COMMERCE**

**COURSE OUTCOME :**

1. Acquire knowledge of E-commerce including its size, growth and future.
2. Gain Knowledge about Emergence of E-commerce.
3. Analyze & learning with Internet security its basic terminology in E-commerce.
4. Understand the importance of business practices using E-commerce.
5. Understand the working statics of HTML web design.

**PGDCA II  
ESSENTIAL OF E-COMMERCE  
PO-CO Mapping**

CO PO	CO-01	CO-02	CO-03	CO-04	CO-05
PO-01	✓				
PO-02					
PO-03					
PO-04					
PO-05		✓			
PO-06					✓
PO-07					
PO-08					
PO-09					
PO-10					

**DEPARTMENT OF COMPUTER APPLICATION**  
**RAJEEV GANDHI GOVT PG COLLEGE AMBIKAPUR (CG)**

Course Code	Course Title	Description	Relevance				
			Global	National	Regional	Local	
PGDCA I SEM	PGDCA101	Introduction to Software Organization	Basics of computer, Input Output Devices, Hard/Soft Copy, Storage Devices, Operating System- MS DOS, Windows Operating System	✓	✓		✓
	PGDCA102	PC Package	Windows7,MS-Word,MS-Excel,MS-PowerPoint	✓	✓	✓	✓
	PGDCA103	Programming in C Language	C Programming concept, Control and branch handling, Array, String, Structure, Union, Function and Pointers	✓	✓		
PGDCA II SEM	PGDCA201	Programming in JAVA	OOPs Vs Procedure oriented programming, class and object, Decision control, binding data and function, Operator overloading, overriding,	✓	✓		
	PGDCA202	DBMS (SQL/Oracle)	Introduction to DBMS, Relational model and DBMS, Database design and concept, Transaction processing.	✓	✓		
	PGDCA203	Essential of E-Commerce	Introduction to E-commerce, internet security and ecommerce, business model, HTML basic, Website design principles	✓	✓	✓	✓