



St. Anthony's Institutions

DARSHAN COLLEGE

Affiliated to Bengaluru University
Opp. R. V. College, Mysore Road, Kengeri
Bengaluru - 560059



Name of the Degree Programme: Bachelor of Computer Applications (BCA)

Programme Outcomes/ Programme Specific Outcomes

PO1: Disciplinary Knowledge

Acquire foundational knowledge in Computer Science and apply design principles to develop solutions for complex problems.

Clarify what specific design principles are taught and how they apply to various problem domains.

PO2: Communication and Interpersonal Skills

(i): Develop strong oral and written communication skills.

(ii): Master various design strategies for tackling complex problems.

Specify which communication skills are targeted and which design strategies are emphasized.

PO3: Critical Thinking and Problem-Solving Capabilities

(i): Enhance reasoning and mathematical skills to identify, formulate, and analyse computer science problems, with a solid understanding of data structures and algorithms.

(ii): Develop algorithmic solutions for real-world problems and gain basic knowledge in statistics and optimization.

Outline how students will develop these skills and the types of problems they will address.

PO4: Teamwork and Respect for Diversity

(i): Effectively work as a team member or leader, manage existing projects, and independently initiate new projects by identifying solution gaps.

(ii): Develop the ability to work independently and pursue advanced education or research in interdisciplinary areas.

Detail what skills or experiences will support effective teamwork and independent project initiation.

PO5: Information and Communication Technology (ICT) Digital Fluency

(i): Foster independent thinking and algorithm development skills to solve real-world problems.

(ii): Identify, select, and use modern scientific and IT tools for modelling, prediction, data analysis, and mobile application development.

Specify which ICT tools and techniques will be used and how students will apply them practically.




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PO6: Self-Directed Lifelong Learning

(i): Acquire programming skills and knowledge of various programming languages for solving everyday problems.

(ii): Gain knowledge in computer application software and the ability to design and develop applications for specific problems.

Indicate how lifelong learning will be supported and which programming languages or software tools will be covered.

PO7: Moral and Ethical Awareness/Reasoning

(i): Recognize professional responsibilities and make informed judgments in computing practices.

(ii): Identify and avoid unethical behaviors like data fabrication or misinterpretation, and practice objectivity and truthfulness.

Provide examples of ethical dilemmas or case studies to illustrate these principles.

PSO1:

Design and develop computer programs and systems in AI, algorithms, networking, web design, cloud computing, IoT, and data analytics.

Define specific skills or technologies within these areas that students will master.

PSO2:

Stay updated with contemporary industrial/research trends and innovate solutions for existing problems.

Describe how students will be exposed to contemporary trends and what methods they will use to innovate.




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Course Outcomes of BCA Course

Semester I

Name of the Course: Discrete Structures

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the basic definitions of sets and its types, apply various operations on sets and represent them using Venn diagrams, discuss and differentiate the types of functions & relations.	PO1, PO2,	R, U, An, E,
CO2	Develop the relations in different forms; construct mathematical arguments using logical connectives and quantifiers.	PO4,	R, U, Ap, An,
CO3	Analyze the basics of counting, distinguish between permutations and combinations, Modelling with recurrence relations with examples of Fibonacci numbers and the tower of Hanoi problem, Summarize the types of relations and represent relations using matrices and digraphs.	PO5, PSO1	R, U, Ap, , E, C
CO4	Interpret different traversal methods for trees and graphs. Analyze problems using graphs and trees.	PO6, PSO2	R, U, Ap, An, E, C
CO5	Define the definition of a matrix, order and its types, create a matrix and solve its determinant and inverse, analyze the applications of matrices to solve systems of linear equations.	PO7	R, U, Ap, An, E, C



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Name of the Course: CA-C2T Problem solving Techniques (Theory)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

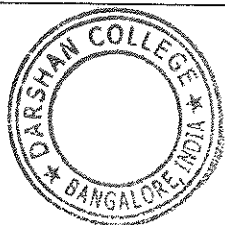
CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Illustrate the flowchart and design an algorithm for a given problem and to develop IC programs using operators, develop conditional and iterative statements to write C programs	PO1,	R, U, E,
CO2	Exercise user defined functions to solve real time problems. Exercise files concept to show input and output files in C	PO2,	R, U, Ap,
CO3	Inscribe C programs that use Pointers to access arrays, C03 strings and functions	PO4,	R, U, Ap, C
CO4	Exercise user defined data types including structures and unions to solve problems	PO5, PSO1	R, U, An, E
CO5	Inscribe C programs using pointers and to allocate memory using dynamic memory management functions.	PO6	R, U, E, C

Name of the Course: Problem solving Techniques (Practicals)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand Basic Structure of C Programming , declaration and usage of variables and be able to	PO1,	R, U, An, E,




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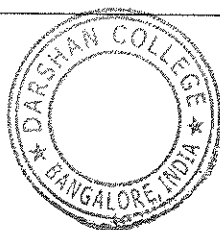
	write basic C programs.		
CO2	Write C Program using data types, variables and pointers	PO2,	R, U, An,
CO3	Exercise Conditional and Iterative statements to write C programs	PO3 PO 4 PSO1	R, U, Ap, , E
CO4	Write C programs using pointers to access arrays, strings and functions.	PO5, PS	R, U, Ap, An, C
CO5	Write C programs and allocate memory using dynamic memory management functions and user defined data types.	PO7	R, U, Ap,

Name of the Course: CA-C3T Data Structure (Theory)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Select appropriate data structures as applied to specified problem definition.	PO1, PO2,	R, U, An, E,
CO2	Implement operations like searching, insertion and deletion, traversing mechanism etc. on various data structures	PO3 PO4,	R, U, An,
CO3	Students will be able to implement Linear and Non-Linear data structures such as Trees, Hashing etc..	PO5, PSO1	R, U, Ap, , C
CO4	Learn and understand various important concepts of Sorting and Searching	PO6,	R, U, Ap, An, E
CO5	Implement appropriate sorting/searching technique for	PO7	R, U, An, E, C



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	given problem		
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Name of the Course: CA-C3T Data Structure (Practical)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

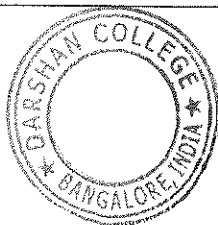
CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Ability to solve problems implementing appropriate data structures using C language	PO1, PO2,	R, U, An, E,
CO2	Implement operations like searching, insertion and deletion, traversing mechanism etc. on various data structures using C	PO3	R, U, Ap, An,
CO3	Ability to implement Linear and Non-Linear data structures using C such as Trees, Hashing etc..	PO4	R, U, Ap, , E, C
CO4	Learn and understand various important concepts of Sorting and Searching techniques using C	PO6, PSO1	R, U,
CO5	Implement appropriate sorting/searching technique using relevant data structures in C language	PO7	R, U, Ap,

Name of the Course: Event Management (Open Elective:)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the process of organizing an event.	PO1, PO2,	R, U, E,
CO2	Understand the importance of a checklist in	PO3,	R, U, Ap,



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	organizing an event.		An,
CO3	Familiarize with organizing corporate events.	PO4 PO5,	R, U, Ap, , E, C
CO4	Obtain a sense of responsibility for the multidisciplinary nature of event management.	PO6, PSO1	R, U, Ap, An
CO5	Learn to promote the events	PO7	R, U, Ap, C

Name of the Course: Generic English

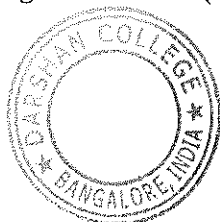
Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Acquire the LSRVV (Listening, Speaking, Reading, Writing) skills and Learn to appreciate literary art	PO1, PO2,	R, U, An, E,
CO2	Obtain the knowledge of literary devices and genres and Acquire the skills of creativity to express one's experiences	PO3,	R, U, Ap, An,
CO3	Know how to use digital learning tools and Be aware of their social responsibilities	PO4 PO5,	R, U, Ap, , E, C
CO4	Develop their ability as critical readers and writers and Increase their reading speed	PO6, PSO2	R, U,
CO5	Be able to give presentations and Increase their analytical skills.	PO7	R, U, An, E, C

Name of the Programme: Environmental Studies (AECC)

Cognitive Levels (Blooms taxonomy)



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R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Bring about an awareness of a variety of CO1 environmental concerns	PO1,	R, U, An, E,
CO2	Understand the concepts of ecosystem, natural resources, biodiversity as well as to discuss the factors impacting biodiversity loss and ecosystem degradation.	PO2, PO4,	R, U, Ap, An,
CO3	Develop an understanding of pollution and sensitize to adverse health impacts of pollution.	PO5, PSO1	R, U, Ap, , E, C
CO4	Learn about major international institutions and programmes and the role played by them in the protection and preservation of the environment.	PO6, PSO2	R, U, Ap,
CO5	Create a pro-environmental attitude and a behavioral pattern in society that is based on creating sustainable lifestyles.	PO7	R, U, C

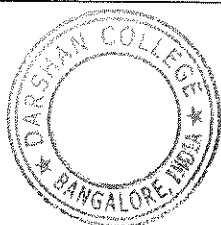
SEMESTER III

Name of the Course: Python Programming (Theory)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Integrate basic programing with python syntax in writing programs.	PO1, PO2,	R, U, An, E,
CO2	Understanding and applying various data structures based on their usage. Applying control structures	PO4,	R, U, Ap, An,
CO3	To give a broad view of the concept of Object-Oriented Programming (OOP) applied in Python	PO5, PSO1	R, U, Ap, , E, C



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CO4	Understanding various types of files in python, creating classes downloading CSV files for analysis	PO6, PSO2	R, U, Ap, An, E, C
CO5	Creating different types of graphs for Data visualisation using Python libraries.	PO7	R, U, Ap, An, E, C

Name of the Course: Python Programming (Practical)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Integrate basic programing with python syntax in writing programs	PO1, PO2,	R, U, An, E,
CO2	Understanding and applying various data structures based on their usage. Applying control structures.	PO3 PO4,	R, U, An,
CO3	To give a broad view of the concept of Object-Oriented Programming (OOP) applied in Python.	PO5, PSO1	R, U, Ap, , C
CO4	Understanding various types of files in python, creating classes downloading CSV files for analysis	PO6,	R, U, Ap, An, E
CO5	Creating different types of graphs for Data visualisation using Python libraries	PO7	R, U, An, E, C

Name of the Course: Operating System

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create



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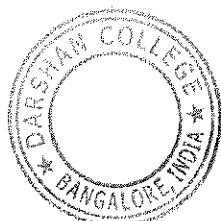
CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the concept of Process Management and Inter Process communication Component of an Operating System	PO1, PO2,	R, U, An, E,
CO2	Solve scheduling and synchronization problems pertaining to processes and threads	PO3 PO4,	R, U, An,
CO3	Comprehend the primary memory control and interaction of an operating system.	PO5, PSO1	R, U, Ap, , C
CO4	Elaborate the understanding of an operating system by giving emphasis on the file systems and Hard Disk Management.	PO6,	R, U, Ap, An, E
CO5	Realize the importance and the implementation of protection mechanism used by an operating system and Learn the concepts of operating system through experimental practice using Linux operating system	PO7	R, U, An, E, C

Name of the Course: Networking (Theory)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Describe the growth of computer networks and types of communication and understanding modem hardware used in data circuits.	PO2, PO1,	R, U, An, E,
CO2	Recognise the structure of Data Communications System and the concepts of Network models (OSI and the TCP - IP Reference models), their functions of OSI Layers and different Protocols used in these Models.	PO4,	R, U, Ap, An,



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CO3	Apply the Design of Data Link protocols, Network layer services, performance and its protocols, Packet switching, Unicast Routing, Routing Algorithms.	PO5, PSO1	R, U, Ap, , E, C
CO4	Describe the growth of the Transport layer, its protocols, TCP services, features. Connection, Segment, TCP Congestion Control, Flow control. Error Control	PO6, PSO1	R, U, Ap,
CO5	Explain the(. different protocols used at application layer i.e. HTTP, SNMP, SMTP, FTP, TELNET and VPN	PO7	R, U, C

Name of the Course: CA-C14L: COMPUTER NETWORKS LAB

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Demonstrate practical skills in network configuration, troubleshooting, and management using a variety of networking commands and tools.	PO1,	R, U, An, E,
CO2	Acquire hands-on experience in network cabling, device configuration, and network connectivity.	PO2, PO4,	R, U, Ap, An,
CO3	Apply advanced networking techniques for security and network management using simulation tools.	PO5, PSO1	R, U, Ap, , E, C

Name of the Course: CA-C15L: PYTHON PROGRAMMING LAB

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Demonstrate proficiency in Python programming by utilizing basic and advanced data types, control structures, and functions.	PO1,	R, U, An, E,
CO2	Apply Python programming techniques for file handling, date and time operations, and data analysis	PO2, PO3,	R, U, Ap, An,



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	tasks.		
CO3	Integrate Python with libraries like numpy, pandas, and math for efficient data manipulation and mathematical computations.	P4 PO5,	R, U, Ap, , E, C

Name of the Course: Sociology Of Tourism Management (OPEN ELECTIVE)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Grasp key sociology, culture, and tourism concepts, exploring links between tourism, leisure, and recreation	PO1,	R, U, An, E,
CO2	Differentiate tourism types (cultural, heritage, religious, etc.) and analyze their characteristics	PO2,	R, U, Ap,
CO3	Examine mutual impacts of tourism on locals, hosts, and guests, emphasizing development, motivation, and tourist roles.	PO4, PO5,	R, U,
CO4	Evaluate diverse impacts on host places (social, economic, climate) and explore sustainable tourism strategies	PO6 PSO1,	R, U, Ap,
CO5	Analyze tourism demand, understand consumer behavior, and explore intermediary roles in the industry.	PO7	R, U, C

Name of the Programme: Generic English

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create



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CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Acquire the LSRW (Listening, Speaking, Reading, Writing) skills	PO1,	R, U, An, E,
CO2	Analyze and interpret a wide range of literary texts, including poetry, prose and drama	PO2,	R, U, Ap, An,
CO3	Develop critical thinking and analytical skills to evaluate literary works.	PO3 PSO1	R, U, Ap, , E, C
CO4	Apply research and critical writing skills to explore contemporary issues related to English Literature.	PO4	R, U, Ap,
CO5	Develop a passion for reading and a lifelong appreciation for the richness of English	PO6	R, U, C

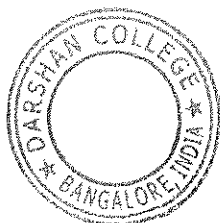
Name of the Course: Hindi

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Students will get knowledge of drama literature and develop their language skills.	PO1,	R, U, An, E,
CO2	Students can acquire the knowledge of Hindi grammar and utilize it in day-to-day life.	PO2, PO4,	R, U, Ap, An,
CO3	Students can gain Reading, Writing and Oratory skills.	PO5, PSO1	R, U, Ap, , E, C
CO4	Students understand the themes, plot and characterization of the drama- Ek aur Dronacharya.	PO6, PSO2	R, U, Ap,
CO5	Students learn about human values and emotions like empathy, honesty, truthfulness and humanity etc.	PO7	R, U, C

Name of the Course: India and Indian Constitution (AECC)



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Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Explain the philosophy and structure of Constitution	PO1,	R, U,
CO2	Contextualise the depth of India as a nation with its diverse socio-political culture and philosophical values	PO2, PO3	R, U, Ap,
CO3	Give the knowledge to expand the breadth of freedom struggle and its significance in nation building	PO4,	R, U, C
CO4	Measure the powers, functions and limitations of various offices under the constitution.	PO6, PSO1	R, U, Ap,
CO5	Demonstrate the values, ideals and the role constitution in India	PO7	R, U, C

SEMESTER V

Name of the Course: Artificial Intelligence

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the various characteristics of problem solving agents and apply problem solving through search for AI applications	PO1,	R, U, An, E,
CO2	Appreciate the concepts of knowledge representation using Propositional logic and Predicate calculus and apply them for inference/reasoning	PO2, PO3,	R, U, Ap, An,
CO3	Obtain insights about Planning and handling uncertainty through probabilistic reasoning and fuzzy systems	PO4	R, U



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CO4	Understand basics of computer vision and Natural Language Processing and understand their relevance in AI applications.	PO6,	R, U, Ap,
CO5	Obtain insights about machine learning, neural networks, deep learning networks and their significance.	PO7	R, U,

Name of the Course: Data Analytics (Theory)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

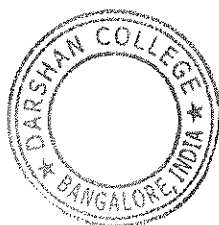
CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Explore the fundamental concepts of data analytic	PO1, PO2	R, U, An, E,
CO2	Recognize and conduct statistical inference to solve engineering problems	PO2, PO3,	R, U, Ap, An,
CO3	Appreciate the science of statistics and the scope of its potential applications	PO5, PSO1	R, U, Ap, , E, C
CO4	Summarize and present data in meaningful ways	PO6	R, U, Ap,
CO5	Select the appropriate statistical analysis depending on the research question at hand	PO7	R, U, C

Name of the Course: Data Analytics (Practical)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understanding basic excel commands	PO1,	R, U, An, E,
CO2	Create dashboard in Excel	PO2, PO4,	R, U, Ap, An,
CO3	Create Python Programming for data analytics	PO5, PSO1	R, U, Ap, , E, C



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CO4	Create Report using Power BI	PO6, PSO2	R, U, Ap,
CO5	Create Dashboard using Power BI	PO7	R, U, C

Name of the Course: Data Mining

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understanding basic Data Mining Tasks, KDD	PO1,	R, U,
CO2	Understand and implement classical models and algorithms in data mining	PO2, PO4,	R, U, An,
CO3	Characterize the kinds of patterns that can be discovered by association rule mining, classification and clustering	PO5,	R, U, Ap, , E,
CO4	Master data mining techniques in various applications like social, scientific environmental context and ASSOCIATION RULES	PO6,	R, U, Ap,
CO5	Develop skill in selecting the appropriate data mining algorithm for solving practical problems.	PO6	R, U, C

Name of the Course: Web programming (Theory)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the various characteristics of problem solving agents and apply problem solving through search for AI applications.	PO1,	R, U, An, E,
CO2	Understand and implement classical models and	PO2,	R, U, Ap,



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	algorithms in data mining.	PO3,	An,
CO3	Recognise the variety of techniques and their range of potential applications	PO4,	R, U
CO4	Discover how to use Web programming in a variety of applications	PO5	R, U, Ap,
CO5	Find out how to choose the best web programming to solve real-world challenges.	PO6	R, U, C

Name of the Course: Web programming (Practical)

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

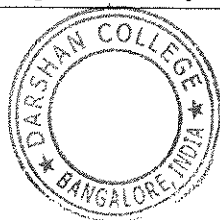
CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the various characteristics of problem solving agents and apply problem solving through search for AI applications.	PO1,PO2	R, U, An, E,
CO2	Understand and implement classical models and algorithms in data mining.	PO2, PO3,	R, U, Ap, An,
CO3	Recognise the variety of techniques and their range of potential applications	PO5, PO4	R, U, Ap, , E, C
CO4	Discover how to use Web programming in a variety of applications.	PO6,	R, U, Ap,
CO5	Find out how to choose the best web programming to solve real-world challenges.	PO7	R, U, C

Name of the Course: Quantitative Techniques

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Recall and apply basic mathematical operations and formulas to solve quantitative aptitude-based questions. Analyze the Problems logically and implement varied approaches in its solving. Prove competencies in coding and decoding of letters, symbols, and numbers	PO1,	R, U, An, E,



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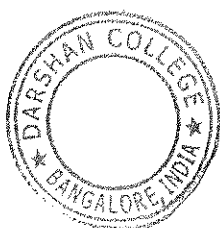
CO2	Develop analytical and logical reasoning skills for data interpretation. Formulate and apply the concepts of logical and analytical reasoning skills to compete in various competitive exams	PO2, PO3,	R, U, Ap, An,
CO3	Apply and evaluate the concepts of profit and loss, ratio and proportion, simple and compound interest, stocks and shares and discounts in real life scenarios. Evaluate and distinguish deductive and inductive reasoning	PO5,	R, U, Ap, , E, C
CO4	Analyze and solve problems based on time and work, time and distance, ages, calendar, clock, train, boats and streams etc. Summarize, interpret, and present quantitative data in mathematical forms, such as graphs, charts, Venn diagrams and draw inferences from them	PO6, PSO1	R, U, Ap,
CO5	Understand and explain the concepts related to teaching and developing research aptitude. Analyze and recall the facts in reading comprehension.	PO7	R, U, C

Name of the Course: SEC III- Cyber Crime, Cyber Law and Intellectual Property Rights

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand cyber crimes, their nature, legal remedies	PO1,	R, U, An, E,
CO2	Understand how to report the crimes through available platforms and procedures	PO2,	R, U, Ap,
CO3	Recognize various privacy and security concerns on Social media and e-commerce platforms.	PO5,	R, U,
CO4	Use basic tools and technologies to protect their devices	PO6	R, U, Ap,
CO5	Understand digital environment and IPR issues	PO7	R, U, C




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SEMESTER II

Name of the Course: CA-C11T: OPERATING SYSTEMS

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

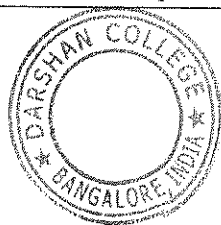
CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Acquire a foundational understanding of computer system organization and operating system structures, including processes and multithreaded programming.	PO1,	R, U,
CO2	Develop an in-depth understanding of process synchronization, scheduling algorithms, and deadlock management.	PO2, PO4,	R, U, An,
CO3	Gain comprehensive knowledge of memory management strategies and file system concepts and implementation.	PO5,	R, U, Ap, C
CO4	Develop expertise in file-system and mass-storage management, and understand distributed systems, including practical insights from case studies of major operating systems.	PO6,	R, U, Ap,

Name of the Course: CA-CT Computer Architecture

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Basic number system and arithmetic operations on the number system, and also the usage of combinational and sequential circuits along with Simplifying Boolean expressions using K-Map	PO1,	R, U, An, E,
CO2	Basic computer organization and design. Computer instructions, time and memory management, central processing unit. Along with SISC and RISC.	PO2, PO4,	R, U, Ap, An,
CO3	register transfer and micro operations, micro	PO5,	R, U, Ap,



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	programmed control, input output, and instruction level parallelism. Memory System, Micro System and Thread Parallelism	PSO1	, E, C
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Name of the Course CA-C7T Object Oriented Programming using Java

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	To understand the basic concepts and fundamentals of platform independent object oriented language	PO1,	R, U, An, E,
CO2	Understand core concepts of Java like inheritance and Polymorphism. Learn how to achieve code reusability using inheritance and polymorphism concepts Event handling in Java. To develop skills in internet programming using applets and swings Understand how to design GUI components with the Java Swing API	PO5	R, U, Ap,
CO3	Demonstrate skills in writing programs using exception handling techniques and multithreading. Learn Java generics and how to use the Java Collections API	PO7	R, U, C

Name of the Course: CA-C8T DBMS

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Basic concepts and the applications of database have broad understanding of the three level architecture of DBMS. Database System Environment, Classification of Database Management Systems.	PO1,	R, U, An, E,
CO2	Identify the basic concepts and various data models used in	PO2, PO3,	R, U, Ap,




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	database design. Design ER-models to represent simple database application scenarios. Explain the basic concepts of relational data model		An,
CO3	Apply relational database theory. To be able to describe relational algebra expression, tuple and domain relational expression for queries. Recognize and identify the use of normalization and functional dependency. To formulate SQL queries on data using basic DDL, DML and DCL commands. Transaction Processing, Properties, Concurrency control, Recovery	PO4,	R, U

Name of the Course: OE1: Open Elective

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the overview of Retail business, evolution, scope of business Retailer: characteristics and functions To learn about the Retail organization and functional management	PO1,	R, U, An, E,
CO2	To understand the retail marketing mix and Strategies new product launch, life cycle in retailing, factors influencing the location of stores, customer shopping behavior	PO5	R, U, Ap,
CO3	To learn about the recent trends and career opportunities- critical analysis of E-Tailing strategies, types of marketing and campaigns	PO6	R, U, C

SEMESTER IV

Name of the Course: Software Engineering -CA- C16T

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create



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CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Understand the concept of software products and different processing models, along with the requirement and change of requirement management and system engineering process along with the new world methodology -Agile methodology	PO1,	R, U, An, E,
CO2	Understand software prototyping and techniques. Study of software design and designing strategies and architecture.Object oriented and function oriented design. Dataflow design and detailed design, understanding the design principles and user system interface	PO2, PO3,	R, U, Ap, An,
CO3	Study of software reliability and reusability. And object oriented and detailed design.Software specification and validation techniques, project management, quality management, cost estimation and software maintenance. Risk Management	PO5,	R, U, Ap, E, C

Name of the Course : Internet Technologies CA-C18T

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	To Understand basic concepts of internet, servers, internet s security and also basic concepts of HTML and XHTML.And also introducing CSS levels of style sheets And formats properties and Text properties	PO1,	R, U, An, E,
CO2	To understand Overview of JavaScript, syntax characteristic, operations and expressions, control statements object creation, Modification; Arrays, Constructors and error handling concepts.To understand JavaScript Execution environment, document Object model, event access, handling events and the navigator objects.	PO6, PSO1	R, U, Ap,
CO3	Introduction to Dynamic documents, positioning elements,	PO6	R, U, C



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	staking, mouse movements, namespace XML schemas displaying XML documents, documents with CSS; XSLT style sheets web servers		
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Name of the Course: CA-C17T The Analysis and Design of Algorithms

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Develop a strong foundation in algorithmic problem solving and analyze algorithm efficiency using fundamental data structures and techniques.	PO1,	R, U,
CO2	Apply advanced algorithmic techniques including space-time tradeoffs, dynamic programming, and greedy algorithms to solve complex problems.	PO2, PO4,	R, U, An,
CO3	Analyze the limitations of algorithm power and apply advanced problem-solving techniques such as backtracking and branch-and-bound to solve complex problems.	PO5,	R, U, Ap, C

Name of the Course: CA-C19L: Algorithms Lab

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create

CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Demonstrate the implementation and performance analysis of fundamental search and sorting algorithms.	PO1,	R, U,
CO2	Apply advanced algorithmic techniques to solve complex problems and optimize performance using both brute-force and advanced methods.	PO2, PO4,	R, U, An,
CO3	Develop and analyze algorithms for graph traversal, minimum spanning trees, topological sorting, and string matching.	PO6,	R, U, Ap,

Name of the Course: CA-C20L INTERNET TECHNOLOGIES LAB

Cognitive Levels (Blooms taxonomy)

R- Remember; U- Understand; Ap- Apply; An — Analyse; E- Evaluate; C— Create



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CO. No.	Course Outcome	PO and PSO	Cognitive Level
CO1	Demonstrate the ability to create and organize web pages using HTML and CSS, including basic and advanced elements.	PO1,	R, U,
CO2	Implement JavaScript to enhance web interactivity through dialog boxes, form validations, and arithmetic operations.	PO2,	R, U, An,
CO3	Demonstrate proficiency in using email communication tools and organizing online meetings using platforms like Zoom and Google Meet.	PO7,	R, U,E,




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