

Gour Mahavidyalaya
Department of Computer Science
B.Sc. Computer Science (Hons.) CBCS

Semester	Topic	Course Outcome
I	DC1: Discrete Mathematics	After successfully completing this course, students will be able to: CO1: Able to work with graphs and identify certain parameters. CO2: Develop the skill of converting mathematical problem graphically and vice versa. CO3: Motivates to solve real life problems. CO4: Develop suitable techniques of analysis of problems. CO5: Enable students to develop a positive attitude towards mathematics as an interesting and valuable subject to study. CO6: Develop the logical thinking of students. CO7: Apply mathematical foundations to design computer based algorithms. CO8: Perform certain algorithms, justify why these algorithms work, and give some estimates of the running times of these algorithms.
	DC2: Introduction to Programming through C	After successfully completing this course, students will be able to: computers. CO1: Understand algorithms and flowchart for solving problems using computers. CO2: Understand and can choose the loops and decision-making statements to solve the problem. CO3: Implement different Operations on arrays and will use functions to solve the given problem. CO4: Implement different Operations using pointers, ADT and file system to solve the given problem. CO5: To enrich the students in logic development required for programming. CO6: To help the students to build carrier in various branches of software development.
II	DC3: Data Structure & Algorithm	After successfully completing this course, students will be able to: CO1: Students will understand system related Programming such as Operating System functioning. CO2: Students will capable to develop problem solving abilities using a computer. CO3: To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems. CO4: To imbibe quality software development practices. To create awareness about process and product standards. CO5: Students will train in professional skills related to Software Industry. CO6: To prepare necessary knowledge which is related to operating system and base for research and development in Computer Science.
	DC4: Digital Logic System	After completion of this course student will be able to: CO1: Solve problems based on interconversion of number systems. CO2: Reduce the expression using Boolean theorems. CO3: Reduce expressions using K maps in SOP and POS forms. CO4: Understand the operation of all types of Logic Gates, their families etc. CO5: Understand how to use Combinational Logic circuits using Logic Gates and using ICs.
III	DC5: Computer Organization & Architecture	After completion of this course student will be able to: CO1: Understand the working of different Sequential logic circuits CO2: Understand working operations of different types of Flip flops as a basic building block.

		<p>CO3: Know the operations of shift registers and Binary Counters.</p> <p>CO4: Understand the basic Computer System and general organization of different blocks.</p> <p>CO5: To understand the organization of memory in the Computer system and know different types of Memories.</p>
	<p>DC6: Operating System</p>	<p>After completion of this course student will be able to:</p> <p>CO1: Master functions, structures and history of operating systems.</p> <p>CO2: Master understanding of design issues associated with operating systems.</p> <p>CO3: Master various process management concepts including scheduling, synchronization, deadlocks.</p> <p>CO4: Be familiar with multithreading.</p> <p>CO5: Understand concepts of memory management including virtual memory.</p> <p>CO6: Master system resources sharing among the users.</p> <p>CO7: Master issues related to file system interface and implementation, disk management.</p> <p>CO8: Be familiar with protection and security mechanisms.</p> <p>CO9: Understand the basics of Unix system administrator.</p>
	<p>DC7: Object Oriented Programming with C++</p>	<p>After completion of this course student will be able to:</p> <p>CO1: Understand and can choose the loops and decision-making statements to solve the problem.</p> <p>CO2: Implement different Operations on arrays and will use functions to solve the given problem.</p> <p>CO3: Implement different Operations using pointers, ADT and file system to solve the given problem.</p> <p>CO4: Understand the concept of object oriented programming.</p> <p>CO5: Use the benefits of object oriented design and understand when it is an appropriate methodology to use.</p> <p>CO6: Design object oriented solutions for small systems involving multiple objects.</p>
IV	<p>DC8: Theory of Computation</p>	<p>After successfully completing this course, students will be able to:</p> <p>CO1: Design a finite automaton to recognize a given regular language.</p> <p>CO2: Transform a language into regular expression or finite automaton or transition graph and define deterministic and nondeterministic finite automata.</p> <p>CO3: Prove properties of regular languages and classify them.</p> <p>CO4: Define relationship between regular languages and context-free grammars.</p> <p>CO5: Building a context-free grammar for pushdown automata.</p> <p>CO6: Determine whether a given language is context-free language or not and Prove properties of context-free languages.</p> <p>CO7: Design Turing machine and Post machine for a given language.</p> <p>CO8: Students are exposed to a broad overview of the theoretical foundations of computer science.</p>
	<p>DC9: Database Management System</p>	<p>After successfully completing this course, students will be able to:</p> <p>CO1: Understand the fundamental concepts of database.</p> <p>CO2: Understand user requirements and frame it in data model.</p> <p>CO3: Understand creations, manipulation and querying of data in databases</p> <p>CO4: Solve real world problems using appropriate set, function, and relational models.</p> <p>CO5: Design E-R Model for given requirements and convert the same into database tables.</p> <p>CO6: Use SQL.</p>
	<p>DC10: Introduction to Microprocessor</p>	<p>After the completion of the course the student will be able to:</p> <p>CO1: Analyze and design various microprocessor types and their characteristics.</p> <p>CO2: To evaluate several applications of Microprocessor.</p>

		<p>CO3: Develop practical understanding, limitations and constraints of the theory they learn.</p> <p>CO4: Understand the architecture of 8085 and 8051.</p> <p>CO5: Impart the knowledge about the instruction set.</p>
V	DC11: Data Communication & Networking	<p>After successfully completing this course, students will be able to:</p> <p>CO1: Students will get acquainted with fundamentals of Networking like PAN, LAN, MAN, WAN, topologies and Home & Business applications of Networks.</p> <p>CO2: Students will clear their basic concepts about the standards, their need & types of standards.</p> <p>CO3: Students will know the design issues for the layers, layered architecture of the Network Models & functions performed at each layer. CO4: Students will come to know the role played by different addresses at different layers of the network models.</p> <p>CO5: Students will understand very basic networking hardware like transmission media types & tools description.</p> <p>CO6: Students will be able to understand the need and importance of protocols at each layer in the communicating computers.</p>
	DC12: Computer Graphics	<p>After successfully completing this course, students will be able to:</p> <p>CO1: Understand how to use graphics objects represented in computer.</p> <p>CO2: Will able to correlate between user and computer through graphics.</p> <p>CO3: Able to increase the productivity through graphics.</p> <p>CO4: Understand programmer's perspective of working of computer graphics.</p> <p>CO5: Compare various graphics algorithm used in 2D and 3D Be able to understand fundamentals of graphics used in various real life applications.</p> <p>CO6: Understand and identify the performance characteristics of graphics algorithms.</p>
	DSE1-E2: Introduction to Python Programming	<p>After successfully completing this course, students will be able to:</p> <p>CO1: Understand why Python is a useful scripting language for developers.</p> <p>CO2: Learn how to use lists, tuples, and dictionaries in Python programs.</p> <p>CO3: Learn how to identify Python object types.</p> <p>CO4: Learn how to use indexing and slicing to access data in Python programs.</p> <p>CO5: Define the structure and components of a Python program.</p> <p>CO6: Learn how to write loops and decision statements in Python.</p> <p>CO7: Learn how to write functions and pass arguments in Python.</p> <p>CO8: Learn how to build and package Python modules for reusability.</p> <p>CO9: Learn how to design object-oriented programs with Python classes.</p>
	DSE2- E2: Intelligent System	<p>After undergoing the course, Students will be able to:</p> <p>CO1: Learn the use of AI in different real life problems.</p> <p>CO2: Use the heuristic search techniques for AI related problems.</p> <p>CO3: Analyze and formalize the problem (as a state space, graph, etc.) and select the appropriate search method.</p> <p>CO4 : Choose an appropriate problem-solving method.</p> <p>CO5 : Know how knowledge is represented in computer system and different knowledge-representation scheme.</p>
	SEC-1: Sensor Network & IOT	<p>After undergoing the course, Students will be able to:</p> <p>CO1: Examine the potential business opportunities that IoT can uncover.</p> <p>CO2: Identify how IoT differs from traditional data collection systems.</p> <p>CO3: Use real IoT protocols for communication</p> <p>CO4: Determine the right sensors and communication protocols to use in a particular IoT system.</p> <p>CO5: Establish data migration techniques from IoT devices to the cloud.</p> <p>CO6: Implement security features to protect data stored in the cloud.</p> <p>CO7: Understanding the fundamentals of Internet of things and its architecture</p> <p>CO8: Understand of IOT Protocols and IOT Applications</p>

VI	DC13: Software Engineering	After undergoing the course, Students will be able to: CO1: Understand basic concepts of software engineering. CO2: Implement Software life cycle models and have a knowledge of different phases of Software life cycle. CO3: Calculate the cost & staff for a particular project at the start. CO4: Schedule their software in an appropriate way & make it track. CO5: Make an unambiguous SRS (software requirement specification) after collecting requirements of any client.
	DC14: Compiler Design	After the completion of the course the student will be able to: CO1: Understand how to build symbol tables and generate intermediate code. CO2: Understand compiler architecture. CO3: Design & conduct experiments for Intermediate Code Generation in compiler. CO4: Design & implement a software system for backend of the compiler. CO5: Deal with different translators.
	DSE3-E2: Introduction to Data Science	After undergoing the course, Students will be able to: CO1: Summarize the basic concepts of data science and its importance. CO2: Analyze the data quantitatively or categorically , measure of averages, variability. CO3: Identify different trends in scatter plots, strengths of association between two numerical variables. CO4: Classify the concepts of data science and its importance. CO5: Build and assess data-based models. CO6: Execute statistical analyses with professional statistical software. CO7: Demonstrate skill in data management.
	DSE - 4: Project	After undergoing the course, Students will be able to: CO1: Work with a group to solve a problem. CO2: Utilise the technical resources. CO3: Write technical/training reports. CO4: Give oral presentation related to the work completed.
	SEC - 2: Internet Technology & Web Design	After undergoing the course, Students will be able to: CO1: Gain an in-depth understanding of the web and Internet technologies CO2: Understand the basic concepts for network implementation CO3: Understand the basic working scheme of the Internet and the World Wide Web CO4: Learn about the fundamental tools and technologies for web design CO5: Comprehend the technologies for Hypertext Mark-up Language (HTML) CO6: Specify the design rules in constructing websites and web pages. CO7: Effectively deal with the programming issues related to HTML,CSS, and PHP.


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