ACHARYA PRAFULLA CHANDRA COLLEGE

NEW BARRACKPORE

B.Sc. (GENERAL) COMPUTER SCIENCE (GENERAL)

COURSE SPECIFIC OUTCOME (CBCS)

Semester – I

Course	Course prerequisite	Expected outcome
CORE **CMSGCOR01T: Problem Solving with Computer (THEORY)** **CMSGCOR01P: Problem Solving with Computer (PRACTICAL)**	Elementary concepts on Mathematics	1. Students will be able to understand the fundamental hardware components that make up a computer system and the role of each of these components and the difference between an operating system and an application program. 2. Students will be able to analyze problems, and designing and implementing algorithmic solutions and solve problems properly, achieving an implementation that is correct, effective and efficient. 3. Students will be able to understand why Python is a useful scripting language for developers. 4. Students will able to learn knowledge of syntax, variable declarations, control structures, loop constructs and understand modules in Python. 5.Students will able to learn how to design and program Python applications using lists, tuples, and dictionaries, objects, indexing and slicing to access data, building package ,reading and writing files and Python classes. Hands-on experience on Python through practical sessions.

Semester – II

Course	Course prerequisite	Expected outcome
CORE **CMSGCOR02T: DBMS (THEORY)** **CMSGCOR02P: DBMS (PRACTICAL)**	Basic Concepts on Discrete Mathematics and Data Structures. Elementary concepts in Programming	1. Understand the fundamental elements of relational database management systems, concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL. 2. Represent simple database application scenarios, Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data. 3. Improve the database design by normalization. Familiar with basic database storage structures and access techniques Hands-on experience on SQL Commands through practical sessions using standard DBMS.

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Semester – III

Course	Course prerequisite	Expected outcome
CORE **CMSGCOR03T: OS** **(THEORY)**	Concepts on Digital Design, Computer Organization and Architecture	1. Students will be able to familiar with the important computer system resources and the role of operating system in their management policies and algorithms. 2. Students will be able to understand the process management policies and scheduling of processes by CPU and evaluate the requirement for Process synchronization and coordination handled by operating system. 3. Students will be able to analyze and apply different memory management techniques and its allocation policies. 4. Students will be able to learn the basic concepts of File and I/O management and various issues regarding protection and security aspects.
CMSGCOR03P: LINUX **(PRACTICAL)**	Programming with C/C++.	Hands-on experience on operating systems through practical sessions.

Semester – IV

Course	Course prerequisite	Expected outcome
CORE **CMSGCOR04T: Computer System Architecture** **(THEORY)**	Basic Mathematics and Elementary concepts on Programming.	1. Students will be able to understand and apply number systems, instruction sets, addressing modes, and data/instruction formats for designing and implementing computer based system 2. Students will be able to write program using assembly language for a variety of applications.. 3. Students will be able to design independently control unit for a small instruction set. 4. Students will be able to learn different memory technologies and design memory organization and familiar with input and output organization techniques for a computing system
CMSGCOR04P: Computer System Architecture **(PRACTICAL)**	Elementary concepts on Programming.	Hands-on experience on Digital Design and Assembly Language Program through practical sessions.

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Semester – V

Course	Course prerequisite	Expected outcome
Discipline Specific Elective (DSE1) **CMSGDSE01T:** **Programming in JAVA**	Basics of using a computer, knowledge of basic command line shell and introduction to Programming is strongly recommended. Elementary concepts on Programming.	To learn how to implement object-oriented designs, stand-alone Java applications, exception handling, applications with threads, read and write files
SKILL ENHANCEMENT COURSE (SEC1) **CMSSSEC01M:Programming in Python**	Elementary Concepts on C++/JAVA and Shell Scripts.	1. Students will be able to understand why Python is a useful scripting language for developers. 2. Students will be able to learn knowledge of syntax, variable declarations, control structures, loop constructs and understand modules in Python. 3. Students will be able to learn how to use lists, tuples, and dictionaries, how to identify Python object types, how to use indexing and slicing to access data, how to define the structure and components of a Python program, how to write functions and pass arguments in Python, how to build and package Python modules for reusability, how to read and write files in Python, how to design object-oriented programs with Python classes and how to use class inheritance in Python for reusability.

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COURSE SPECIFIC OUTCOME (CBCS)

Semester – VI

Course	Course prerequisite	Expected outcome
Discipline Specific Elective (DSE2) **CMSGDSE03T: Software Engineering**	Foundation on Problem Solving and Critical Thinking	1. Understand the software life cycle models and software development process. Elicit, analyze and specify software requirements through a productive working Relationship with project stakeholders. Understand the concept of Software Design and emphasizing upon various software metrics used for analyzing the software. 2. Demonstrate various testing methodologies and debugging tools for prototype software. Design various software reliability measures to assess the quality of software in case of various faults and failures. Adaptation of Software maintenance and emerging trends in software engineering. Develop correct and robust software products.
SKILL ENHANCEMENT COURSE (SEC2) **CMSSSEC02M:R Programming**	Basic Concepts on Mathematics, Statistics and Programming.	1. Understand the basics in R programming in terms of constructs, control statements, string functions. Learn to apply R programming for Text processing. 2. Understand the use of R for Big Data analytics. Able to appreciate and apply the R programming from a statistical perspective. Explore data-sets to create testable hypotheses and identify appropriate statistical tests