ST. XAVIER'S COLLEGE JAIPUR

Nevta - Mahapura Road, Jaipur - 302029, Rajasthan, India

Affiliated to the University of Rajasthan

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COURSE OUTCOMES

Bachelor of Computer Applications

(B.C.A)

COURSE OUTCOMES (COs)	
BCA PART I	
101(Theory): Computer Fundamentals and Office Management Tools	
CO 1.	Understand the basics of computers
CO 2.	Understand the concept of input and output devices of Computers and how they work and recognize the basic terminology used in computer programming
CO 3.	Identify and represent numbers in different number systems
CO 4.	Analyse and understand in-depth training in the use of office automation packages, internet etc
CO 5.	Enhance the ability of essential for common man for day-to-day office management, and e-governance
CO 6.	Evaluate how to use software packages in day-to-day activities
102(Theory): Computer Organization	
CO 1.	Identify functional units and illustrate register transfer operations
CO 2.	Explain the internal organization of the computer and its instructions
CO 3.	Make use of fixed and floating-point algorithms and analyse microprogram instructions
CO 4.	Summarize the memory organization and pipelining concepts
CO 5.	Illustrate data transfer between a central computer and I/O devices

103(Theory): Operating System	
CO 1.	Describe the basics of the operating systems, and mechanisms of OS to handle processes, threads, and their communication
CO 2.	Analyse the memory management and its allocation policies
CO 3.	Illustrate different conditions for deadlock and their possible solutions
CO 4.	Discuss the storage management policies concerning different storage management technologies
CO 5.	Evaluate the concept of the operating system with respect to UNIX, Linux, Time, and mobile OS
104(Theory): Principles of Programming Language through C	
CO 1.	Understand the basics of programming language
CO 2.	Understand the basics of algorithms and flowcharts
CO 3.	Write, compile and debug programs in C language
CO 4.	Understand, explain, and use different data types and operators to write programs
CO 5.	Formulate, evaluate, and analyse the problems by applying programming concepts using decision control statements and loop control statements
CO 6.	Formulate the problem by applying the programming concepts using array, structure, pointer and functions

105(Theory): Web Application Development	
CO 1.	Describe the basics of the Internet and concepts like Internet service providers, internet connections, and Internet protocols
CO 2.	Discuss basics of e-mail, mailing lists, newsgroups, Internet relay chat, and instant messaging
CO 3.	Describe Internet services: Telnet, FTP, and the Web
CO 4.	Analyse a web page and identify its elements and attributes
CO 5.	Create web pages using HTML and Cascading Style Sheets
CO 6.	Build dynamic web pages using JavaScript (Client-side programming)
106(Theory): Basic Mathematics	
CO 1.	Identify matrix operations
CO 2.	Understand the meaning of limit, continuity, and differentiation
CO 3.	Evaluate a definite integral using the Fundamental Theorem of Calculus
CO 4.	Identify a general method for constructing solutions to inhomogeneous linear constant-coefficient Second-order equations
CO 5.	Demonstrate Scalar multiplication, magnitude, Vector multiplication and Simple application of Vectors, the slope of a straight line, centre, radius, and the equation of a circle

107(Practical): Office Management Tools Lab	
CO 1.	Understand the basic features of Microsoft Office, Windows basics, and file management
CO 2.	Develops familiarity with Word, Excel, Access, PowerPoint, email, and Internet basics
CO 3.	Recognize when to use each of the Microsoft Office programs to create professional and academic documents
CO 4.	Use Microsoft Office programs to create personal, academic, and business documents following current professional and/or industry standards
108(Practical): C Programming Lab	
CO 1.	Identify different programming approaches in procedural programming
CO 2.	Analyse and critically evaluate various programming approaches which will help in the implementation of different applications or projects
CO 3.	Select and implement different programming approach concepts in project or application development
CO 4.	Demonstrate awareness of the programming paradigm in terms of understanding the concept of application development

109(Practical): Web Application Development Lab	
CO 1.	Understand, analyse, and apply the role of languages like HTML, CSS, and JavaScript in web development
CO 2.	Analyse and explore a web page and identify its elements and attributes
CO 3.	Design static web pages using HTML and CSS
CO 4.	Create dynamic web pages using JavaScript
110(Practical): Communication Skills Lab	
CO 1.	Effectively communicate through verbal/oral communication and improve listening skills
CO 2.	Write precise briefs or reports and technical documents
CO 3.	Actively participate in group discussions/meetings/interviews and prepare & deliver presentations
CO 4.	Become an effective individual through goal/target setting, self-motivation and practising creative thinking
CO 5.	Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of teamwork, Interpersonal relationships, conflict management and leadership quality

BCA PART II	
201(Theory): Object Oriented Programming (C++)	
CO 1.	Investigate different concepts of programming approaches in terms of the application or project development
CO 2.	Create methods and programs within the field of procedural programming as well as develop logical and analytical approaches to programming problems independently
CO 3.	Apply his/her knowledge in new areas within the field of basic and advanced programming
CO 4.	Develop independently relevant applications using self-logic in the field of programming languages These methods include performing experiments/programs and interpreting their results
202(Theory): Database Management System	
CO 1.	To investigate what databases are, different types of databases, and why they are valuable assets for decision making
CO 2.	Develop normalization and ER modelling that are used concurrently to produce a good database design
CO 3.	Recognize the relationships among entities and the attributes of those entities, and in designing an entity relationship diagram to capture those relationships
CO 4.	Develop a set of queries to handle a specified set of typical user inquiries for information extraction from the database

203(Theory): Software Engineering C	
CO 1.	To define basic concepts of software development such as requirement analysis, designing, testing, and debugging etc
CO 2.	To explain different types of models that can be used to design software
CO 3.	To design solutions to a given problem and analyse the best one based on parameters like cost, time, and knowledge
CO 4.	To apply the various testing techniques and testing tools
CO 5.	To explain the importance of reliability in software development
204(Theory): Data Structure and Algorithm	
CO 1.	Students will be able to use linear and non-linear data structures like stacks, queues, linked lists etc
CO 2.	Define basic static and dynamic data structures and relevant standard algorithms for them: stack, queue, dynamically linked lists, trees, graphs, heap, priority queue, hash tables, sorting algorithms, and min-max algorithm
CO 3.	Students will be able to choose appropriate data structures as applied to specified problem definitions
CO 4.	Students will be able to handle operations like searching, insertion, deletion, and traversing mechanism

205(Theory): Cloud Computing	
CO 1.	Investigate different concepts of cloud computing in terms of an individual and organization
CO 2.	Create theories, methods and interpretations of theories within the field of cloud computing as well as solve theoretical and practical problems independently
CO 3.	Apply his/her knowledge in new areas within the field of cloud computing
CO 4.	Develop web applications using the concept of cloud computing
207(Practical): Object Oriented Programming (C++)Lab	
CO 1.	Read and understand Object oriented-based software code of medium-to-high complexity
CO 2.	Use standard and different types of Object-oriented libraries when required for implementation
CO 3.	Understand the basic principles of creating Object-oriented applications or programs
CO 4.	Understand the fundamental concepts of computer science: structure of the computational process, algorithms, and complexity of computation

208(Practical): Database Management System Lab	
CO 1.	Understand, the underlying concepts of database technologies, design and implement a database schema for a given problem domain, and normalization techniques
CO 2.	Populate and query a database using SQL DML/DDL commands, enforce integrity constraints on a database
CO 3.	Concept of transaction and concurrency, understand database concepts and structures
CO 4.	Understand the objectives of data and information management, understand data modelling and database development process
CO 5.	Construct and normalize conceptual data models Implement a relational database into a database management system
209(Practical): Data Structure and Algorithm Lab	
CO 1.	Investigate different concepts of Data Structure in terms of application or project development
CO 2.	Create methods and programs within the field of procedural programming as well as develop logical and analytical approaches to programming problems independently
CO 3.	Apply his/her knowledge in new areas within the field of basic and advanced programming
CO 4.	Develop independently relevant applications using self-logic in the field of programming languages. These methods include performing experiments/programs and interpreting their results

A01(Elective): NET	
CO 1.	Understand the basic structure of C# and Net Programming
CO 2.	Understand the basic Libraries and their functions
CO 3.	Understand the basic concepts underlying the ASP net and C# net
CO 4.	Understand the basic concepts of the NET framework and compact framework
A02(Elective): PHP	
CO 1.	To implement PHP script using Decisions and Loops
CO 2.	To develop PHP applications using Strings, Arrays and Functions
CO 3.	To display and insert data using PHP and MySQL
CO 4.	To design object-oriented programming (OOP) principles for PHP and use HTML form elements that work with any server-side language

A03(Elective):Data Science	
CO 1.	Understand basic concepts and associated terminology of data science
CO 2.	Apply appropriate descriptive and inferential methods to summarize data and identify associations and relationships as part of data analytics
CO 3.	Identify and appropriately acknowledge sources of data
CO 4.	Apply basic data cleaning techniques to prepare data for analysis and presentation as part of the data science process
CO 5.	Recognize, describe, and calculate the measures of location of data, centre of data, and spread of data
CO 6.	Use appropriate data science tools and technology to collect, process, transform, summarize, and visualize data
B01 Elective (Practical): Net Lab	
CO 1.	Demonstrate an understanding of C# syntax through program design
CO 2.	Develop a working knowledge of C# programming constructs and the NET Framework
CO 3.	Write an object-oriented program using custom classes
CO 4.	Build and debug well-formed Web Forms with ASP NET Controls
CO 5.	Create custom controls with user controls
CO 6.	Use ADO NET in a web application to read, insert, and update data in a database

B02 Elective (Practical): PHP Lab	
CO 1.	Analyse PHP scripts and determine their behaviour
CO 2.	Construct PHP scripts to create dynamic web content
CO 3.	Create PHP scripts capable of inserting and modifying data in a MySQL database
CO 4.	Design web pages with the ability to retrieve and present data from a MySQL database

BCA PART III	
301(Theory): JAVA	
CO 1.	Understand the basic principles of OOP and Java Programming
CO 2.	Analyse various techniques and methods used in Java
CO 3.	Implement the various concepts of Java to solve problems
CO 4.	Develop Web and Desktop Applications using Java
302(Theory): Database Management System	
CO 1.	To learn how to use lists, tuples, and dictionaries in Python programs and identify Python object types
CO 2.	To learn how to use indexing and slicing to access data in Python programs
CO 3.	Use if-else statements and switch-case statements to write programs in Python to tackle any decision-making scenario
CO 4.	To learn how to read and write files in Python
CO 5.	Develop cost-effective robust applications using the latest Python trends and technologies
CO 6.	Build the system's entire web development process using various tools

303(Theory): Data Communication & Networking	
CO 1.	Understand the concept of Signals, OSI & TCP/IP reference models and discuss the functionalities of each layer in these models
CO 2.	Discuss and analyse flow control and error control mechanisms and apply them using standard data link layer protocols
CO 3.	Design subnets and calculate the IP addresses to fulfil the network requirements of an organization
CO 4.	Analyse and apply various routing algorithms to find shortest paths for packet delivery
CO 5.	Explain the details of Transport Layer Protocols (UDP, TCP) and suggest appropriate protocols for reliable/unreliable communication
CO 6.	Analyse the features and operations of various application layer protocols such as HTTP, DNS and SMTP
304(Theory): Artificial Intelligence	
CO 1.	Identify basic concepts and scope of Artificial Intelligence
CO 2.	Compare different AI search techniques and apply them to real-world problems
CO 3.	Apply basic principles of AI in solutions that require problem-solving, inference, perception, knowledge representation, and reasoning
CO 4.	Develop intelligent algorithms for constraint satisfaction problems and design intelligent systems for Game Playing
CO 5.	Classify different learning paradigms and their application in Neural Networks
CO 6.	Explain concepts of Natural Language processing and discuss Expert systems

305(Theory): Digital Marketing	
CO 1.	Understand the concept of digital marketing and its real-world iterations
CO 2.	Articulate innovative insights into digital marketing enabling a competitive edge
CO 3.	Understand how to create and run digital media-based campaigns
CO 4.	Identify and utilize various tools such as social media etc
CO 5.	Recognize ethical and moral issues, identify needed actions, and demonstrate the moral courage to implement them
307(Practical): JAVA Lab	
CO 1.	Identify the core concepts of Information Technology, both theoretical and applied
CO 2.	Investigate new technologies, tools, practices, and standards, and relate them to their knowledge domain
CO 3.	Acquaint with design and development tools and engage in systematic evaluation using current methodologies
CO 4.	Demonstrate the ability to integrate IT knowledge and develop industry-oriented projects

308(Practical): Python Lab	
CO 1.	Understand the basic concepts of scripting and the contributions of scripting language
CO 2.	Explore Python data structures like Lists, Tuples, Sets and dictionaries
CO 3.	Create practical and contemporary applications using Functions, and Regular Expressions
CO 4.	Ability to learn how to read and write files in Python
309(Practical): Digital Marketing Lab	
CO 1.	Learn digital marketing tools like search engine optimization and associated analytics
CO 2.	Apply digital marketing tools to a) improve websites' rankings and optimize them in the process b) Improve the brand's visibility c) improve the reach of brands which physically is relatively difficult and less effective
CO 3.	Analyse the relative importance of digital marketing strategies to optimize digital marketing campaigns
CO 4.	Evaluate the performance of different social media in conjunction with the overall digital marketing plan
CO 5.	Design search engine optimization and search engine marketing campaigns

CO1(Elective): Data Warehousing and Data Mining	
CO 1.	Understand the principles of Data warehousing and Data Mining
CO 2.	Familiar with the Data warehouse architecture and its Implementation
CO 3.	Know the Architecture of a Data Mining system
CO 4.	Understand the various Data preprocessing Methods
CO 5.	Perform classification and prediction of data
CO2(Elective): Network Security and Cryptography	
CO 1.	Understand basic security terminologies
CO 2.	Classify the encryption techniques
CO 3.	Illustrate various public key cryptographic techniques
CO 4.	Evaluate the authentication and hash algorithms
CO 5.	Discuss authentication applications
CO 6.	Understand basic concepts of system and web security

CO3(Elective): Machine Learning	
CO 1.	Understand different types of machine learning techniques and their applications in the real world
CO 2.	Apply various mathematical models for supervised machine learning models
CO 3.	Apply and evaluate the unsupervised machine learning models through various clustering algorithms
CO 4.	Apply probabilistic graphical models to represent complex systems and make predictions based on uncertain data
CO 5.	Apply reinforcement learning algorithms to solve real-time complex problems with an understanding of the trade-offs involved
CO 6.	Evaluate various machine learning algorithms through statistical learning techniques