"Dissemination of Education for Knowledge, Science and Culture"
-Shikshanmaharshi Dr. Bapuji Salunkhe

VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE
COURSE OUTCOMES (COs)

B.Sc. I Computer Science (Implemented from JUNE 2023)	
SEMESTER-I	
DSC-I: DSC03CSC11: Problem Solving using Computers-I	
Course Outcomes	After the completion of the course the student will be able to
CO1	Learn Basics of Programming Languages and their classification.
CO2	Understand problem-solving techniques by defining problems, designing programs, and using debugging strategies to identify and fix errors in Python programs.
CO3	Utilize programming methodologies such as top-down and bottom-up programming to develop structured and well-designed Python programs.
CO4	Apply python's built-in data types, variables, and constants to manipulate data effectively.
CO5	Implement control structures and looping constructs in Python.
DSC-II: DSC03CSC12: Introduction to DBMS-I	
Course Outcomes	After the completion of the course the student will be able to
CO1	Understand the fundamental concepts of database management systems, including data models, schemas, and instances.
CO2	Demonstrate proficiency in designing and creating normalized relational database schemas to represent real-world scenarios.
CO3	Utilize SQL queries to perform data manipulation, retrieval, and management, showcasing the practical application of database concepts.
CO4	Analyze and compare different types of database management systems, such as relational, NoSQL, and object-oriented databases.
CO5	Recognize and apply database security measures, including access controls, encryption, and authentication, to ensure data integrity and confidentiality.
SEMESTER-II	
DSC-III: DSC03CSC21: Problem Solving using Computers-II	
Course Outcomes	After the completion of the course the student will be able to
CO1	Develop a solid understanding of Python programming language syntax and fundamental concepts for effective problem-solving.
CO2	Apply algorithmic thinking and problem-solving strategies using Python to solve a variety of computational problems.
CO3	Utilize Python libraries and frameworks to enhance problem-solving efficiency, covering areas such as data manipulation, scientific computing, and web development.
CO4	Design and implement modular and reusable Python code, applying principles of object-oriented programming for code organization and maintenance.

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CO5	Demonstrate proficiency in debugging and testing Python code, ensuring robust and error-free solutions to computational challenges.
DSC-IV: DSC03CSC22: Introduction to DBMS-II	
Course Outcomes	After the completion of the course the student will be able to
CO1	Understand the principles of the relational data model, including concepts such as entities, attributes, relationships, and normalization.
CO2	Apply Entity-Relationship (ER) modeling techniques to represent real-world scenarios and transform ER diagrams into normalized relational database schemas.
CO3	Demonstrate proficiency in using MySQL as a relational database management system, including creating databases, tables, and performing basic SQL operations.
CO4	Design and implement relational databases using MySQL, incorporating constraints, indexes, and views to ensure data integrity and optimize query performance.
CO5	Apply ER-to-Relational mapping techniques to translate conceptual data models into practical relational database structures using MySQL.

SEMESTER-I	
MIN-I: MIN03CSC11: Problem Solving using Computers-I	
Course Outcomes	After the completion of the course the student will be able to
CO1	Learn Basics of Programming Languages and their classification.
CO2	Understand problem-solving techniques by defining problems, designing programs, and using debugging strategies to identify and fix errors in Python programs.
CO3	Utilize programming methodologies such as top-down and bottom-up programming to develop structured and well-designed Python programs.
CO4	Apply python's built-in data types, variables, and constants to manipulate data effectively.
CO5	Implement control structures and looping constructs in Python.
MIN -II: MIN03CSC12: Introduction to DBMS-I	
Course Outcomes	After the completion of the course the student will be able to
CO1	Understand the fundamental concepts of database management systems, including data models, schemas, and instances.
CO2	Demonstrate proficiency in designing and creating normalized relational database schemas to represent real-world scenarios.
CO3	Utilize SQL queries to perform data manipulation, retrieval, and management, showcasing the practical application of database concepts.
CO4	Analyze and compare different types of database management systems, such as relational, NoSQL, and object-oriented databases.
CO5	Recognize and apply database security measures, including access controls, encryption, and authentication, to ensure data integrity and confidentiality.
SEMESTER-II	
MIN -III: MIN03CSC21: Problem Solving using Computers-II	
Course Outcomes	After the completion of the course the student will be able to
CO1	Develop a solid understanding of Python programming language syntax and fundamental concepts for effective problem-solving.
CO2	Apply algorithmic thinking and problem-solving strategies using Python to solve a variety of computational problems.

CO3	Utilize Python libraries and frameworks to enhance problem-solving efficiency, covering areas such as data manipulation, scientific computing, and web development.
CO4	Design and implement modular and reusable Python code, applying principles of object-oriented programming for code organization and maintenance.
CO5	Demonstrate proficiency in debugging and testing Python code, ensuring robust and error-free solutions to computational challenges.
MIN -IV: MIN03CSC22: Introduction to DBMS-II	
Course Outcomes	After the completion of the course the student will be able to
CO1	Understand the principles of the relational data model, including concepts such as entities, attributes, relationships, and normalization.
CO2	Apply Entity-Relationship (ER) modeling techniques to represent real-world scenarios and transform ER diagrams into normalized relational database schemas.
CO3	Demonstrate proficiency in using MySQL as a relational database management system, including creating databases, tables, and performing basic SQL operations.
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CO5	Apply ER-to-Relational mapping techniques to translate conceptual data models into practical relational database structures using MySQL.

SEMESTER-I	
OEC-I: OEC03CSC11: Fundamentals of Computer-I	
Course Outcomes	After the completion of the course the student will be able to
CO1	Develop a foundational understanding of computer architecture, encompassing components such as the central processing unit (CPU), memory, and input/output devices.
CO2	Demonstrate proficiency in using operating systems, understanding their functions, and performing basic system operations.
CO3	Understand the principles of computer networks, including communication protocols, data transmission, and network topologies.
CO4	Gain insights into software development concepts, including programming languages, algorithms, and data structures.
CO5	Apply knowledge of computer security and ethics, recognizing the importance of safeguarding information and practicing responsible computing.
OEC -II: OEC03CSC12: Introduction to Web-I	
Course Outcomes	After the completion of the course the student will be able to
CO1	Students will be able to demonstrate a comprehensive understanding of web technologies and recognize the evolution of web technologies and their significance in modern computing.
CO2	Students will be proficient in creating structured and semantically correct HTML documents.
CO3	Students will develop the skills necessary to create responsive web designs.
CO4	Students will have a solid foundation in JavaScript

SEMESTER-II	
OEC-III: OEC03CSC21: Fundamentals of Computer-II	
Course Outcomes	After the completion of the course the student will be able to
CO1	Understand different data structures, their applications, and perform basic operations on them.
CO2	Analyze and design algorithms to solve computational problems with an understanding of time and space complexity.
CO3	Understand the organization and architecture of a computer system, including digital logic and CPU design.
CO4	Gain insights into operating system functions, memory management, and file systems.
CO5	Introduce the basics of software engineering, including software development life cycle and software testing techniques.
OE -IV: OEL03CSC22: Introduction to Web-II	
Course Outcomes	After the completion of the course the student will be able to
CO1	Upon completion of this course, students will have advanced skills in JavaScript
CO2	Understand the popular front-end frameworks such as React, Angular or Vue. They will be able to build and manage UI components efficiently, as well as understand the principles of state management in front-end applications.
CO3	students will be familiar with essential web development tools, including version control using Git, package management with npm or yarn, and build tools like webpack.
CO4	Students will develop awareness and knowledge of web security principles.

SEMESTER-I	
IKS: IKS03GEC11: Indian Knowledge System	
Course Outcomes	After the completion of the course the student will be able to
CO1	Understand the concepts, technicalities and computational procedures developed by great Indian Astronomers over the past 2000 years
CO2	Understand the nature of Contribution Made by Indian mathematicians
CO3	This course aims to provide students with a comprehensive understanding of the historical progression of chemistry in India. Covering key periods from the pre-Harappan era to the Iatrochemical period
CO4	Understand the importance of Ayurveda in everyday life and enable to advise the constitutional method of diet and Ayurveda life style.

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(Dr. V. B. Waghmare)
HEAD
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