Yashwantrao Chavan College Of Science, Karad
Department of Computer Science
M.Sc. (Computer Science)
(under Faculty of Science and Technology)

Program Outcomes (POs)

At the end of the Master of Science (Computer Science) Programme, graduating students/graduates will be able to:

1. Communicate computer science concepts, designs, and solutions effectively and professionally.

2. Apply knowledge of computing to produce effective designs and solutions for specific problems

3. Identify, analyze, and synthesize scholarly literature relating to the field of computer science Use software development tools, software systems, and modern computing platforms.

4. Prepare for academic roles through NET/SET/PhD

5. Apply design and development principles in the construction of software systems of varying complexity.

Program Specific Outcomes (PSOs)

1. Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems.

2. Ability to understand the structure and development methodologies of software systems.

3. Possess professional skills and knowledge of the software design process. Familiarity and practical competence with a broad range of programming languages and open source platforms.

4. Be acquainted with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing problems.

Course Outcomes (COs)

M.Sc. (Computer Science) Part I Semester I	
Course Code: CC-101 Title of Course: Design and Analysis of Algorithm	
CO1	Analyze the asymptotic performance of algorithms.
CO2	Demonstrate a familiarity with data structures and algorithms.
CO3	Compare algorithms based on time & space complexity.
CO4	Employ graphs to model real life problems, when appropriate.
	Develop algorithms that employ graph computations as key components, and
CO5	Mapping of data structures like Stack, Queue and Linked List to real life problems.
CO6	Master the implementation of linked data structures such as linked lists and binary trees.
CO7	Be familiar with advanced data structuressuch as balanced search trees, hash tables, Red-Black trees, B-trees.
CO8	Understand Divide & Conquer approach, Greedy algorithm, Backtracking approach for algorithm design.
CO9	Be familiar with Branch and Bound & Dynamic programming
Course Code: CC-102 Title of Course: Advanced Database Management System	
CO1	Demonstrate an understanding of the relational data model.
CO2	Formulate, using SQL, solutions to a broad range of query and data update problems.
CO3	Use PL/SQL for handing data in a database as per the user's requirement using programming features
CO4	Define various cursors and its implementation along with procedure and functions.
CO5	To study usage and applications of parallel and distributed databases, object relational database.
CO6	To acquire knowledge on NoSQL databases.
Course Code: CCPR-103, Title of Course: Practical-I	
CO1	To become familiar with programming environment.
CO2	To implement advanced data structures
CO3	Apply data structures in real life problems.
CO4	Able to create tables and generate queries
CO5	To be familiar with different types of databases
Course Code: CC-104 Title of Course: Web Designing	
CO1	Understand the basics of web design
CO2	Gain proficiency in HTML and CSS coding languages
CO3	Understand the importance CSS
CO4	Utilize the JavaScript with websites
Course Code: CCS-105 Title of Course: Cyber Security	
CO1	Realize the need for Cyber Security
CO2	Understand the need for Security in day to day communications
CO3	Understand the vulnerabilities in the Network and Computer System
CO4	Understand the cyber law and Cyber Forensics
CO5	Understand the mobile forensics.

	Course Code: CC-106, Title of Course: Research Methodology
CO1	Understand the fundamental concepts and principles of research methodology in computer science
CO2	Identify and select appropriate research methodologies based on the research problem
CO3	Formulate research questions and hypotheses in the context of computer science research
CO4	Design and execute research studies using quantitative and qualitative approaches
CO5	Apply ethical considerations in conducting computer science research
CO6	Develop critical thinking and problem-solving skills required for computer science research
	M.Sc. (Computer Science) Part I Semester II
	Course Code: CC -201 Title of Course: Advanced Java
CO1	To become familiar with the features of Java Language.
CO2	To become comfortable with concepts such as Classes, Objects, Inheritance, Polymorphism and Interfaces.
CO3	To understand Database connectivity using JDBC Drivers.
CO4	To design application using JSP, Servlet and RMI
CO5	To familiar with hibernate, struts and spring framework
	Course Code: CC -202 Title of Course: Artificial Intelligence
CO1	Apply problem solving by intelligent search approach.
CO2	Represent knowledge using knowledge representation techniques.
CO3	Understand working of Artificial Neural Networks.
CO4	Derive solutions for problems with uncertainty using Fuzzy theory.
CO5	To develop a good understanding of Natural Language Processing and Genetic algorithm
	Course Code: CCPR -203 Title of Course: Practical-II
CO1	To become acquainted with programming environment.
CO2	Student will be able to use advanced technology in Java such as remote method Invocation and JDBC.
CO3	Student will learn how to work with Java Frameworks.
CO4	Student will be able to develop web application using Java Servlet and Java Server
CO5	Design and develop solutions for informed and uninformed search problems in AI.
	Course Code: CC-204 Title of Course: Angular JS
CO1	Understand the fundamental concepts of Angular JS and its role in web development
CO2	Learn how to set up a development environment for Angular JS projects
CO3	Gain proficiency in using directives, filters, and expressions to manipulate and display data
	Course Code: CC -205 Title of Course: Block Chain Technology
CO1	Understand the concept of Blockchain Technology, transactions, block, PoW, Consensus
CO2	Understand the simulation of blockchain technology without any central controlling or trusted agency and how bitcoin cryptocurrency work
CO3	Understand the concept of digital currency, how it can be protected against fraud, scam, hacking and devaluation.
CO4	Understand the concept of bitcoin and Ethereum

M.Sc. (Computer Science) Part II Semester III	
Course Code:CC-301 Title of Course:Artificial Intelligence	
CO1	Apply problem solving by intelligent search approach.
CO2	Represent knowledge using AI knowledge representation techniques.
CO3	Design Machine Learning solution to real life problems.
CO4	Derive solutions for problems with uncertainty using Fuzzy theory.
CO5	Define a NLP problem and find a suitable solution to it.
CO6	To develop a good understanding of all aspects of Natural Language Processing (NLP) and Genetic algorithm.
Course Code:CC-302 Title of Course: Advanced Web Technology	
CO1	Students will be able to develop application using MVC
CO2	Students will be able to understand Entity Framework
CO3	Students will be able to understand Web API
CO4	Students will be able to understand and use azure services
CO5	Students will be able to understand the use of bootstrap
Course Code:CC-303 Title of Course :PHP	
CO1	Students can get the knowledge of Basics of PHP language ,Object-oriented PHP and PHP connection with MYSQL.
CO2	They will create Website and Web Application Development using Open Source Language PHP.
CO3	They will Learn php Framework and Create CRUD application with Framework.
CourseCode:Elective-II: CE-304 Title of Course::1:Software Quality Assurance	
CO1	Understand the basic tenets of software quality and quality factors.
CO2	Be exposed to theSoftware Quality Assurance(SQA) architecture and the details of SQA components.
CO3	Understand of how the SQA components can be integrated into the project life cycle.
Course Code:CC-307 Title of Course:Project	
CO1	Gain skills as they apply knowledge effectively in diverse contexts
CO2	Analyse and model requirements and constraints for the purpose of designing and implementing software artefacts and IT systems
CO3	Design and implement software solutions that accommodate specified requirements and constraints,based on analysis or modeling or requirements specification
CO4	Presenta clear,coherent and independent exposition of software applications, alternative IT solutions,and decision recommendations to both ITand non-IT personnel via technical reports of professional standardand technical presentations
CO5	Teamwork:Work effectively in different roles,to form,manage,and successfully produce outcomes from teams,whose members may have diverse cultural backgrounds and life circumstances,and differing level softechnical expertise

M.Sc. (Computer Science) Part II Semester IV	
Course Code:CCPR-401 Title of Course::Research Seminar	
CO1	Students should develop and enhance their research skills, including the ability to formulate research questions, conduct literature reviews, and design research methodologies.
CO2	Students should be able to think critically and analytically, evaluating existing research and identifying gaps or areas for further investigation.
CO3	Effective communication is a key outcome. Students should be able to present their research findings orally and in writing. This includes preparing research papers, giving presentations, and participating in discussions.
CO4	Developing the ability to deliver clear and engaging presentations is important for sharing research findings with others.
CO5	Understanding the process of getting research published in academic journals or other outlets.
Course Code:CCPR-402 Title of Course::Research /Industrial Project	
CO1	Practical Application: For an industrial project, the emphasis may be on applying theoretical knowledge to real-world problems or industry-specific challenges.
CO2	Problem Solving: Students should gain proficiency in problem-solving, which is a crucial skill when working on research or industrial projects.
CO3	Data Collection and Analysis: Learning how to collect and analyze data, as well as using appropriate software or tools for data analysis, depending on the project's nature.
CO4	Project Management: Understanding project management principles, including setting project milestones, managing resources, and meeting project timelines.
CO5	Teamwork and Collaboration: Many research or industrial projects involve collaboration with colleagues or industry professionals. Learning how to work effectively in a team is often a key outcome.
CO6	Project Documentation: Learning to maintain comprehensive project documentation, which is essential for tracking progress and for knowledge transfer in industry settings.
CO7	Professional Development: Developing skills relevant to professional growth, such as networking, identifying career opportunities, and understanding the relevance of the project to future career prospects.