Maratha Vidya Prasarak Samaj's

COMMERCE MANAGEMENT & COMPUTER SCIENCE (CMCS) COLLEGE,

Gangapur Road, Nashik-13

Programme Outcome, Programme Specific Outcome and Course Outcome

CBCS 2019 Pattern
M.Sc. (Computer Science)

SR. No.	Programme Outcomes
PO1	Be technology-oriented with the knowledge and ability to develop creative solutions, and better understand the effects of future developments of computer systems and technology on people and society.
PO2	Get some development experience within a specific field of Computer Science, through project work.
PO3	Get ability to apply knowledge of Computer Science to the real-world issues.
PO4	Be **f**amiliar with current research within various fields of Computer Science.
PO5	Use creativity, critical thinking, analysis and research skill
SR. No.	Programme Specific Outcomes
PSO1	Enrich the knowledge in the areas like Artificial Intelligence, Web Services, Cloud Computing, Paradigm of Programming language, Design and Analysis of Algorithms, Database Technologies Advanced Operating System, Mobile Technologies, Software Project Management and core computing subjects Choose to study any one subject among recent trends in IT provided in the optional subjects..
PSO2	Students understand all dimensions of the concepts of software application and projects.
PSO3	Students understand the computer subjects with demonstration of

	all programming and theoretical concepts with the use of ICT.
PSO4	Developed in-house applications in terms of projects
PSO5	Interact with IT experts & knowledge by IT visits
PSO6	Get industrial exposure through the 6 months Industrial Internship in IT industry.
PSO7	To make them employable according to current demand of IT Industry and responsible citizen.
PSO8	Aware them to publish their work in reputed journals.
Subject	**Course Outcomes M.Sc. (CS)- I**
Paradigm of Programming Language	CO1 Students will prepare themselves to think about programming languages analytically. They will be able to separate syntax from semantics. . CO2 Students will be able to understand how language features work like Data types, control flow, Subroutines, Data abstraction etc. students will Learn new languages more quickly and Use standard vocabulary when discussing languages. CO3 Students will develop a greater understanding of the issues involved in programming language design and implementation. Students will familiar with design issues of object – oriented and functional languages CO4 Students will learn Functional, Logic Languages like Prolog, Lisp. CO5 Students will know how to analyze semantic issues associated with function implementations, including variable binding, scoping rules, parameter passing
Design and Analysis of Algorithm	CO1 Students will learn fundamental concepts of asymptotic notations of an algorithm, Space & Time Complexity, Searching & Sorting Algorithms, Divide and Conquer techniques. CO2 Students will know various design and analysis techniques such as greedy algorithms, dynamic programming. CO3 Student will understand the techniques used for designing of different graph algorithms. CO4 Students will learn how to apply backtracking, branch and bound techniques for real time problems. CO5 Students will know the concepts of P, NP and NP-Complete problems. CO6 Understand different design strategies CO7 Understand the use of data structures in improving algorithm performance

Database Technologies	CO1 Provide an overview of the concept of NoSQL technology. CO2 Provide an insight to the different types of NoSQL databases CO3 Make the student capable of making a choice of what database technologies to use, based on their application needs.
Cloud Computing	CO1 To understand the principles and paradigm of Cloud Computing CO2 To appreciate the role of Virtualization Technologies CO3 Ability to design and deploy Cloud Infrastructure CO4 Understand cloud security issues and solutions
Artificial Intelligence	CO1 To learn various types of algorithms useful in Artificial Intelligence (AI). CO2 To convey the ideas in AI research and programming language related to emerging technology. CO3 To understand the numerous applications and huge possibilities in the field of AI that goes beyond the normal human imagination.

Web Services	CO1 Must be familiar with XML. Course Objectives:
	CO2 To understand the details of web services technologies like WSDL,UDDI, SOAP
	CO3 To learn how to implement and deploy web service client and server
	CO4 To explore interoperability between different frameworks
	CO5 To understand the concept of Restful system
Mobile Technologies	CO1 To impart basic understanding of the wireless communication systems.
	CO2 To expose students to various aspects of mobile and ad-hoc networks.
	CO3 Understand the issues relating to Wireless applications Understand the Mobile security
Software Project Management	CO1 Software Metrics and Project Management covers skills that are required to ensure successful medium and large scale software projects.
	CO2 It examines Requirements Elicitation, Project Management, Verification &Validation and Management of Large Software Engineering Projects.
	CO3 Students learn to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management; perform software verification and validation using inspections, design and execution of system test cases
Advanced Operating System	CO1 This course teaches Advanced Operating Systems Concepts using Unix/Linux.
	CO2 This course strikes a delicate balance between theory and practical applications In fact, most Units start with the theory and then switches focus on how the concepts are implemented in a C program.
	CO3 This course describes the programming interface to the Unix/Linux system - the system call interface.
	CO4 It is intended for anyone writing C programs that run under Unix/Linux.
	CO5 This course provides an understanding of the functions of Operating Systems.
	CO6 It also provides provide an insight into functional modules of Operating Systems.
	CO7 It discusses the concepts underlying in the design and implementation of Operating Systems.

Subject	Course Outcomes (M.Sc.(CS) II)
Software Architecture and Design Patterns	CO1 Recognize the characteristics of patterns that make it useful to solve real-world problems CO2 Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem. CO3 Able to use specific frameworks as per applications need. CO4 Design java application using design pattern techniques.
Machine Learning	CO1 Recognize the characteristics of machine learning that make it useful to real-world problems. CO2 Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem. CO3 Able to estimate Machine Learning models efficiency using suitable metrics. CO4 Design application using machine learning techniques.
Web Frameworks	CO1 Students will be ready with the technology which is used widely in Industry as a part of full stack developer CO2 Students will know the powerful way to develop the web application in Python. CO3 Students will understand what really the asynchronous programming. CO4 Build and deploy robust Django Web App. CO5 Integrate with Restful web services
Big Data Analytics	CO1 Recognize the characteristics, applications of big data that make it useful to real-world problems. CO2 Process available data using big data tools hadoop file system and predict outcomes to solve given problem CO3 Study & Design various case studies using big data tools/commands and Analyse it.

Web Analytics	CO1 Understand social media, web and social media analytics, and their potential impact.
	CO2 Determine how to Leverage social media for better services and Understand usability metrics, web and social media metrics.
	CO3 Use various data sources and collect data relating to the metrics and key performance indicators.
	CO4 Identify key performance indicators for a given goal, identify data relating to the metrics and key performance indicators.
Practical on Software Architecture and Design Patterns, Machine Learning and Web Frameworks	CO1 Able to use specific frameworks as per applications need.
	CO2 Design java application using design pattern techniques.
	CO3 Process available data using python libraries and predict outcomes using Machine
	CO4 Learning algorithms to solve given problem.
	CO5 Able to estimate Machine Learning models efficiency using suitable metrics.
Subject	**Course Outcomes (Second Year M.Sc-Computer Science) Semester-III**
1. Software Architecture and Design Pattern	CO1 Recognize the characteristics of patterns that make it useful to solve real-world problems.
2. Machine Learning	CO1 Process available data using python libraries and predict outcomes using Machine Learning algorithms to solve given problem.
3. Web Frameworks	CO1 Students will know the powerful way to develop the web application in Python.
4. Big Data /Web Analytics /Project	CO1 To understand the Big Data challenges & opportunities, its applications / Web Analytics methods / To develop a Software Project.
5. Practical on Software Architecture and Design Pattern and Machine	CO1 To enhance practical knowledge related to theory courses.

Learning	
Semester-IV Industrial Training / Institutional project	CO1 Each student must individually complete minimum 5 months full time Industrial training / Institutional project in the 4th semester.