

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2019 CBCS Syllabus)**

Subject: Paradigm of Programming Language (CORE)

**Course Outcome**

CO1: To understand syntax and semantics.

CO2: To understand programming language designs.

CO3: To learn new languages more quickly.

CO4: To understand use standard vocabulary when discussing languages.

CO5: To understand basic language implementation techniques.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
(2019 CBCS Syllabus)

Subject: Design and Analysis of Algorithm(CORE)

**Course Outcome**

CO1: To design the algorithms.

CO2: To learn basic Algorithm Analysis techniques and understand the use of asymptotic notation.

CO3: To select the appropriate algorithm by doing necessary analysis of algorithm.

CO4: To understand different design strategies.

CO5: To understand the use of data structure in improving algorithm performance.

CO6: To understand classical problems and solutions.

CO7: To learn a variety of useful algorithms.

CO8: To understand classification problem.

CO9: To provide foundation in algorithm design and analysis.

CO10: To develop the ability to understand and design algorithms in context of space and time complexity.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2019 CBCS Syllabus)**

Subject: Database Technologies (CORE)

**Course Outcome**

CO1: To provide an overview of the concept of NoSQL technology.

CO2: To provide an insight to the different types of NoSQL database .

CO3: To make the student capable of making a choice of what database technologies to use, based on their application need.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2019 CBCS Syllabus)**

Subject: Cloud Computing (ELECTIVE)

**Course Outcome**

CO1: To understand the principal paradigm of cloud computing.

CO2: To appreciate the role of Virtualization Technologies.

CO3: To have ability to design and deploy Cloud Infrastructure.

CO4: To Understand cloud security issue and solutions.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2019 CBCS Syllabus)**

Subject: Artificial Intelligence (ELECTIVE)

**Course Outcome**

CO1: To learn various types of algorithms useful in Artificial Intelligence.

CO2: To convey the ideas in AI research and programming.

CO3: To understand the numerous applications and huge possibilities in the field of AI that goes beyond the normal human imagination.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2019 CBCS Syllabus)**

Subject: Web Services (ELECTIVE)

**Course Outcome**

CO1: To understand the details of web services like WSDL, UDDI, SOAP.

CO2: To learn and understand how to implement and deploy web service client and server.

CO3: To explore interoperability between different frameworks.

CO4: To understand the concept of RESTful system.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
**(2019 CBCS Syllabus)**

Subject: Advanced Operating System (CORE)

**Course Outcome**

CO1: To provides understanding of the functions of Operating System.

CO2: To provides an insight into the functional module of Operating System.

CO3: To understand the concept of underlying design and implementation of Operating System.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
**(2019 CBCS Syllabus)**

Subject: Mobile Technologies (CORE)

**Course Outcome**

CO1: To impart basic understanding of the wireless communication system.

CO2: To expose students to various aspects of mobile and ad-hoc networks.

CO3: To understanding the issue relating to Wireless applications.

CO4: To understand the Mobile security.



Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
**(2019 CBCS Syllabus)**

Subject: Software Project Management (CORE)

**Course Outcome**

CO1: To covers skills that are required to ensure successful medium and large scale software projects.

CO2: To examines Requirements Elicitation, Project Management, Verification and Validation and Management of Large Software Engineering Projects.

CO3: 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.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
**(2019 CBCS Syllabus)**

Subject: Human Computer Interaction (ELECTIVE)

**Course Outcome**

CO1: To design effective dialogue for HCI.

CO2: To design effective HCI for individuals and persons with disabilities.

CO3: To assess the importance of user feedback.

CO4: To explain the HCI implication for designing multimedia / e-commerce / e-learning Web sites.

CO5: To develop meaningful user interface.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
**(2019 CBCS Syllabus)**

Subject: Soft Computing (ELECTIVE)

**Course Outcome**

CO1: To introduce the ideas of soft computational techniques based on human experience.

CO2: To generate an ability to design, analyze and perform experiments on real life problems using various Neural Learning Algorithms.

CO3: To conceptualize fuzzy logic and its implementation for various real world applications.

CO4: To apply the process of approximate reasoning using Neuro-Fuzzy Modeling.

CO5: To provide the mathematical background to carry out optimization using genetic algorithms.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2019 CBCS Syllabus)

Subject: Project

**Course Outcome**

CO1: Describe the phases of Software development project life cycle.

CO2: Apply the various project management tools and techniques.

CO3: Implement software systems that meet specified design & performance requirements.

CO4: Use Team Management to effectively design & implement the project.

CO5: Demonstrate effective project execution & Control techniques that results in successful project.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
(2013 Syllabus)

Subject: Principles of Programming Languages (CORE)

**Course Outcome**

- CO1: To understand syntax and semantics.
- CO2: To understand programming language designs.
- CO3: To learn new languages more quickly.
- CO4: To understand use standard vocabulary when discussing languages.
- CO5: To understand basic language implementation techniques.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2013 Syllabus)**

Subject: Advanced Networking (CORE)

**Course Outcome**

CO1: To provide advanced background on relevant computer networking topics to have a comprehensive and deep knowledge in computer networks.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
(2013 Syllabus)

Subject: Distributed Database Concepts (CORE)

**Course Outcome**

CO1: To understand the principles and foundations of distributed databases.

CO2: To understand addresses architecture, design issues, integrity control, query processing and optimization, transactions, and concurrency control & distributed transaction reliability.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
(2013 Syllabus)

Subject: Design and Analysis of Algorithms (CORE)

**Course Outcome**

CO1: To separate syntax from semantics.

CO2: To compare programming language designs.

CO3: To learn new languages more quickly.

CO4: To use standard vocabulary when discussing languages.



Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - I  
**(2013 Syllabus)**

Subject: Network Programming (CORE)

**Course Outcome**

CO1: To Provide Knowledge of C

CO2: To Understand Basic of Networking Concepts

CO3: To Provide Knowledge of Linux

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2013 Syllabus)

Subject: Digital Image Processing (CORE)

**Course Outcome**

CO1: To learn the fundamental concepts of Digital Image Processing

CO2: To study basic image processing operations

CO3: To understand image analysis algorithm

CO4: To expose students to current application in the field of Digital Image Processing

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
**(2013 Syllabus)**

Subject: Advanced Operating Systems (CORE)

**Course Outcome**

CO1: To Provide knowledge of C programming.

CO2: To Understand Basic Computer Architecture concepts.

CO3: To Understand Basic algorithms and data structure concepts.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2013 Syllabus)

Subject: Data ware housing and mining (CORE)

**Course Outcome**

CO1: To provide easy access to data from different sources

CO2: To create user friendly reporting environment

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2013 Syllabus)

Subject: Programming With DOT NET ( ELECTIVE)

**Course Outcome**

CO1: To understand the DOTNET framework, C# language features and Web development using Dot Net

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2013 Syllabus)

Subject: Artificial Intelligence (ELECTIVE)

**Course Outcome**

CO1: To understand and gain the knowledge of the subject

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2013 Syllabus)

Subject: Advanced Design and Algorithm (ELECTIVE)

**Course Outcome**

CO1: To analyze the asymptotic performance of algorithms.

CO2: To demonstrate a familiarity with major algorithms and data structures.

CO3: To apply important algorithmic design paradigms and methods of analysis.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – I Sem - II  
(2013 Syllabus)

Subject: Project Sem II and Sem III

**Course Outcome**

CO1: Describe the phases of Software development project life cycle

CO2: Apply the various project management tools and techniques

CO3: Implement software systems that meet specified design & performance requirements

CO4: Use Team Management to effectively design & implement the project

CO5: Demonstrate effective project execution & Control techniques that results in successful project



Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
(2013 Syllabus)

Subject: Software Metrics & Project Management (CORE)

### **Course Outcome**

CO1: To covers skills that are required to ensure successful medium and large scale software projects.

CO2: To examines Requirements Elicitation, Project Management, Verification and Validation and Management of Large Software Engineering Projects

CO3: 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

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
**(2013 Syllabus)**

Subject: Mobile Computing (CORE)

**Course Outcome**

CO1: To familiarize the students with the buzz words and technology of mobile Communication

CO2: To understand the GSM architecture

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
(2013 Syllabus)

Subject: Soft Computing (CORE)

**Course Outcome**

- CO1: To understand the concepts of how an intelligent system work and its brief development process.
- CO2: To understand importance of soft computing
- CO3: To understand different soft computing techniques like Genetic Algorithms, Fuzzy Logic , Neural Networks and their combination
- CO4: To implement algorithms based on soft computing.
- CO5: To apply soft computing techniques to solve engineering or real life problems.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
**(2013 Syllabus)**

Subject: Web Services(ELECTIVE)

**Course Outcome**

CO1: To Understand Web Services and implementation model for SOA

CO2: To Understand the SOA, its Principles and Benefits

CO3: To Understand cloud computing as a web service

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
**(2013 Syllabus)**

Subject: Database and System Administrator (ELECTIVE)

**Course Outcome**

CO1: To acquire a combination of both Operating Systems & Database Administration skills.

CO2: To give ideal opportunity to practice what you have learned through SDBA program.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
(2013 Syllabus)

Subject: Functional Programming (ELECTIVE)

**Course Outcome**

- CO1: To understand what functional programming is, what different variants are there and have some grasp of their history;
- CO2: To explain the semantics of different functional languages using precise formal specifications;
- CO3: To know how to implement functional languages and what optimizations are important;
- CO4: To be able to state and critique what it means for an implementation of a functional programming language to be correct
- CO5: To be able to (in principle) formally prove correctness of their implementations, including their compilers and garbage collectors

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - III  
(2013 Syllabus)

Subject: Business Intelligence (ELECTIVE)

**Course Outcome**

CO1: To understand the role of BI in enterprise performance management and decision support.

CO2: To understand the applications of data mining and intelligent systems in managerial work.

CO3: To understand data warehousing and online analytical processing (OLAP) concepts

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - IV  
**(2013 Syllabus)**

Subject: Full Time Industrial Training/ Industrial Project (CORE)

**Course Outcome**

CO1: To apply the theory knowledge to get hands-on experience in the field of computer science

CO2: To appreciate the ethical basis of professional practice in relevant industry



Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - IV  
**(2013 Syllabus)**

Subject: Parallel Computing (ELECTIVE)

**Course Outcome**

CO1: To Learn basic models of parallel machines and tools

CO2: To learn how to parallelize programs and how to use basic tools like MPI and POSIX threads.

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - IV  
(2013 Syllabus)

Subject: Embedded System (ELECTIVE)

**Course Outcome**

CO1: To understand and design embedded systems and real-time systems

CO2: To apply real-time systems design techniques to various software programs

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - IV  
(2013 Syllabus)

Subject: Software Quality Assurance (ELECTIVE)

**Course Outcome**

CO1: To enable student to learn Software Quality Assurance good practices with the help of various techniques, Strategies and tools

Kannada Sangha Pune's  
**Kaveri College of Arts, Science and Commerce, Pune**

M.Sc(CS) – II Sem - IV  
**(2013 Syllabus)**

Subject: Modeling and Simulation (ELECTIVE)

**Course Outcome**

CO1: To provide students with an opportunity to develop skills in modeling and simulating a variety of problems.