Sangamner Nagarpalika Arts, D. J. Malpani Commerce & B. N. Sarada Science College (Autonomous), Sangamner - 422605, Dist. Ahmednagar

Programme Outcomes (POs)

POs for B.Sc. Computer Science

PO	Nature of Knowledge	Science Graduates will be able to :
PO1	**Remember**	Define and describe the scientific terms
PO2	**Understand**	Characterize and classify various subject related components.
PO3	**Application**	Apply knowledge through calculation, drawing, sketching etc.
PO4	**Analysis**	Analyze, correlate and examine the scientific problems.
PO5	**Evaluate**	Conclude, criticize and determine the solutions to scientific problems.
PO6	**Create**	Create and generate knowledge based models, projects etc.
PO7	**Ethics**	Become good citizens of the Nation. They will be aware of fundamental rights of themselves and others.
PO8	**Individual and Team work**	Develop leadership qualities and actively participate in Individual and team works.
PO9	**Communication**	Develop communication skill and express themselves effectively.
PO10	**Life-long learning**	Develop life-long learning skills and keep themselves engaged in updating their subject related knowledge.

POs for M.Sc.

PO	Nature of Knowledge	Science Post Graduates will be able to :
PO1	**Advance knowledge**	Understand, acquire and apply knowledge of the scientific principles.
PO2	**Understand**	Characterize and classify various subject related components.
PO3	**Application**	Demonstrate thorough knowledge, understanding and skills in application of scientific methodology to undertake and report on experimental investigation.
PO4	**Analysis**	Analyze, correlate and examine the scientific problems.
PO5	**Scientific and critical thinking**	Possess high awareness of major issues and development of research and competent in initiating, developing, and pursuing a scientific research.
PO6	**Create**	Create and generate knowledge based models, projects etc.
PO7	**Ethics**	Act with integrity and good ethics in their profession and their obligation to society
PO8	**Social skills and responsibility**	portray good interpersonal skills with high ability to work collaboratively as part of a team undertaking a range of different team roles
PO9	**Communication**	present technical, scientific information and arguments clearly and correctly, in written and oral presentation
PO10	**Life-long learning**	Seek new knowledge, skills and manage relevant information from various sources.

Course Outcomes

Course Outcomes

Faculty – Science

Department of Computer Science

Name of Course Title : Operating Systems – I

Course Code : CS-3475

On completion of the course, student will be able to,

CO1) Understand the concept of operation system and its principle.

CO2) Study the various functions and services provided by operating system.

CO3) Understand the concepts of process and threads.

CO4) Understand processes and Thread Scheduling by operating system.

CO5) Study Memory management schemes.

Name of Course Title : T.Y.B.Sc.(Computer Science)

Course Code : CS 3485

CO 1 Student will understand the different protocols of Application layer.

CO 2 Develop understanding of technical aspect of Multimedia Systems CO 3 Develop various Multimedia Systems applicable in real time.

CO 4 Understand, compare and apply cryptographic techniques for data security

Name of Course Title :T.Y.B.Sc.Computer Science

Course Code :CS-3495

CO1- Learn techniques of responsive web design, including media queries.

CO2-Understand how to develop dynamic and interactive Web Page

CO3-Develop skills in analyzing the usability of a web site

Name of Subject :Object Oriented Programming using Java - I
Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3515
CO1: Understand the concept of classes, objects, packages.
CO2: to implement reusable classes using inheritance.
CO3: To develop user defined packages.
CO4: To develop GUI based applications.

Name of Course Title : Theoretical Computer Science
Course Code :CS-3525
On completion of the course, student will be able to,
CO1- Understand the use of automata during language design.
CO2- Relate various automata and Languages.

Name of Course Title : Practical course I (Based on CS-3475 Operating System-I)
Course Code : CS-3535
CO1) Understand shell commands implementation.
CO2) Understand Process synchronization.
CO3) Learn Processes scheduling techniques operating system.
CO4) Understand Memory management by operating system with the help of various Schemes.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3545
CO1-Understand how to develop dynamic and interactive Web Page
CO2-Prepare data for use with a variety of statistical methods and recognize how the quality of the data may affect conclusions.
CO3-Perform exploratory data analysis.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3555
CO1- Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
CO2 - Read and make elementary modifications to Java programs that solve real-world problems.
CO1 - Validate input in a Java program.

Name of Course Title : T.Y.B.Sc.(Computer Science)
Course Code : CS-3565
CO 1 Develop logic for problem solving
CO 2 Determine the methods to create and develop Python programs by utilizing the data CO 3 structures like lists, dictionaries, tuples and sets.
CO4 To be familiar about the basic constructs of programming such as data, operations, conditions, loops, functions etc.
CO 5 To write python programs and develop a small application project.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3575
CO1-Learn the fundamentals of Blockchain Technology.
CO2-Develop skills in analyzing the usability of Blockchain programming
CO3-Basic knowledge of Smart Contracts and how they function.

Name of Course Title : Operating Systems - II
Course Code : CS-3586
CO1) Understand the issue of Deadlocks in Process management.
CO2) Understand the concept of File system management & disk scheduling.
CO3) Understand the scheduling storage or disk for processes.
CO4) Study the concept of distributed and mobile operating systems.

Name of Course Title : T.Y.B.Sc.(Computer Science)
Course Code : CS 3596

CO 1 To understand various software testing methods and strategies.
CO 2 To understand a variety of software metrics, and identify defects and managing those defects for improvement in quality for given software.
CO 3 To design test cases and test plans, review reports of testing for qualitative software.
CO4. To understand latest testing methods used in the software industries.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS- 3606

CO1- Develop web based applications using suitable server side web technologies.
CO2- Apply solution to complex problems using appropriate method, technologies, web services and content management.
CO3- Understand web services and front end advanced technologies.

Name of Course Title : T.Y.B.Sc. (Computer Science)
Course Code : CS 3616

CO1) Use appropriate models of analysis, assess the quality of input, and derive insight from results.
CO2) Analyze data, choose relevant models and algorithms for respective applications.
CO3) Understand different data mining techniques like classification, prediction, clustering and association rule mining.
CO4) Apply modelling and data analysis techniques to the solution of real world business problems.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3626

CO1: To access open databases through Java programs using Java Database Connectivity (JDBC) and develop the application.
CO2: Understand and Create dynamic web pages, using Servlets and JSP.
CO3: Work with basics of framework to develop secure web applications.

Name of Course Title : Compiler Construction
Course Code : CS-3636
CO1 - Understand the process of scanning and parsing of source code.
CO2 - Learn the conversion code written in source language to machine language.
CO3 -Understand tools like LEX and YACC.

Name of Course Title : Practical course I (Based on CS-3586 Operating System-II)
Course Code : CS-3646
CO1) Understand deadlocks management by operating system.
CO2) Understand File System management.
CO3) Understand Disk space management and scheduling.
CO4) Understand distributed and mobile OS basics.
Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3656
CO1-Build dynamic website.
CO2-Using MVC based framework easy to design and handling the errors in dynamic websites.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3666
CO1 - To Learn database Programming using Java.
CO2 - Understand and Create dynamic web pages using Servlets and JSP.
CO3 - Work with basics of framework to develop secure web applications.

Name of Course Title : T.Y.B.Sc.(Computer Science)
Course Code : CS 3676
CO 1 - To understand various software testing methods and strategies.
CO 2 - To understand a variety of software metrics and identify defects and managing those defects for improvement in quality for given software.
CO 3 - To design test cases and test plans, review reports of testing for qualitative software. CO 4 To understand latest testing tools used in the software industries.

Name of Course Title :T.Y.B.Sc.Computer Science
Course Code :CS-3686
CO1-Understand project characteristics and various stages of a project.
CO2- Understand the conceptual clarity about project organization and feasibility analyses.

Course Outcomes

Faculty – Science

Department of BCA (Under Science)

Name of Course Title : T.Y.B.C.A.(under Science)

Course Code : BCAS-3475

CO1-Apply collection classes for storing java objects.
CO2- Use Java APIs for program development.
CO3- Design end to end applications using object oriented constructs.

Name of Course Title : T.Y.B.C.A.(under Science)

Course Code : BCAS-3485

CO1 - To understand various software testing methods and strategies.
CO2 - To understand a variety of software metrics, and identify defects and manage those defects for improvement in quality for given software.
CO3 - To design test cases and test plans, review reports of testing for qualitative software.
CO4 - To understand the latest testing methods used in the software industries.

Name of Course Title : T.Y.BCA(Computer Science)

Course Code : BCAS- 3495

CO1- To introduce students to the basic concepts and techniques of Data Mining and Data Science.
CO2- To identify different phases of data pre-processing such as data cleaning, data integration, data transformation, and data reduction.
CO3- To study of the data warehousing and Schema Design.
CO4- To understand the classification and classification methods.

Name of Course Title : T.Y.B.C.A.(Under Science)
Course Code : BCAS-3505
CO1 - Describe the core features and concepts in Go
CO2 - Write simple Go programs using functions
CO3 - Apply defining methods.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS-3515
CO1 - Apply technique for inter-process communication and Multithreading
CO2 - Implement concept of critical-section
CO3 –Compare and contrast deadlock avoidance and prevention.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS-3525
CO1 - Apply the suitable algorithms to solve AI problems.
CO2 - Identify and apply suitable intelligent agents for various AI applications.
CO3 - Build smart system using different informed search / uninformed search or heuristic approaches.
CO4 - Represent complex problems with expressive language of representation.

Name of Course Title : T.Y.B.C.A. (under Science)
Course Code : BCAS-3535
CO1) To know the process of application development using Graphical User Interface (GUI).
CO2) To acquire knowledge about handling databases using Java.
CO3) To study web components for developing web applications.

Name of Course Title : Practical II(Data Mining And GO)
Course Code : BCAS-3545
CO1 - Implement data mining tasks using R.
CO2 - To understand the need for data pre-processing.
CO3 - Be able to evaluate what has been learned through the application of the appropriate statistics used in classification techniques.

CO4 - To introduce essential programming features in GO.
CO5 - To become familiar with programming techniques in GO.

Name of Course Title : Practical III (Operating System I and AI)
Course Code : BCAS-3555
CO1) Management of deadlocks by operating system.
CO2) Implement algorithms for Process scheduling and Memory management.
CO3) Describe process synchronization and multithreading.
CO4) To design a simple expert system using AI.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS-3565
CO1- Explain the core issues in cloud computing such as security, privacy, and interoperability.
CO2- Choose the appropriate technologies, algorithms, and approaches for the given application.
CO3- Compare and contrast various cloud services.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCA-3575
CO1- Understand the system.
CO2- Analyse the system
CO3- Apply system design models on the system.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS- 3586
CO1 -To learn the concept of framework using Java
CO2 -To develop applications using Spring.
CO3 - To learn Data Access techniques.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS- 3596
CO1-Comprehend Software Project Management Concepts
CO2-Use various tools for Software Project Management Schedule various activities in software projects
CO3- Track a project and manage changes

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS-3606
CO1: - Compare and evaluate different data mining techniques like classification, prediction, clustering, and association rule mining.
CO2: - Choose an appropriate method to perform exploratory analysis.
CO3: - Interpret results by carrying out data visualization and formal inference procedures.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS-3616
CO1 Apply defining methods and Go Interfaces
CO2 Use Go routines and Channels
CO3 Explore Go Packages

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS-3626
CO1 - Describe algorithms for process, memory and disk scheduling.
CO2 - Use functions for file system management.
CO3 – Memory management by operating system using with the help of various schemes.

Name of Course Title : T.Y.B.C.A (Computer Science)
Course Code : BCAS-3636
CO 1 - To understand various software testing methods and strategies.
CO 2 - To understand a variety of software metrics and identify defects and managing those defects for improvement in quality for given software.
CO 3 - To design test cases and test plans, review reports of testing for qualitative software.
CO 4 - To understand latest testing tools used in the software industries.

Name of Course Title : Practical IV (Java Framework)
Course Code : BCAS-3646
CO1) Develop applications using Spring.
CO2) Develop applications for data access.

Name of Course Title : Practical V (Data Science and GO)
Course Code : BCAS-3656
CO1 Learn about Apriori algorithm and association rule mining
CO2 Understand regression and its types.
CO3 Methods used for detection of outliers.
CO4 Discover structures and patterns in high-dimensional data
CO5 Apply defining methods and Go Interfaces.
CO6 Use Go routines and Channels
CO7 Explore Go Packages.

Name of Course Title : Practical VI(Operating System II & Software Testing Tools)
Course Code : BCAS-3666
CO1: write programs for memory management.
CO2: write programs for deadlock handling mechanism
CO3: using software testing tools.

Name of Course Title : T.Y.B.C.A.(under Science)
Course Code : BCAS- 3676
CO1: To know the design steps of software products.
CO2: Know about product debugging and testing techniques.
CO3: Understand different types of documentation procedures required for product design.
CO4: Understand requirements for entrepreneurship.