



Palus Shikshan Prasarak Mandal's

Arts, Commerce & Science College, Palus

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(Affiliated to Shivaji University, Kolhapur)

DBT STAR College Scheme Assisted, NAAC Reaccredited with CGPA-2.67(B+)

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B.A., B.Com, B.Sc., B.B.A., B.C.A., B.C.S., M.A., M.Com., M.Sc., PGDCA.

Principal, Dr. R. S. Salunkhe M.A., M.Com., M.Phil., Ph.D., SET, M.B.A., D.Litt.

Outward No.: Mahavi/ /F- /

B. Sc. Computer Science (Entire) (BCS)

Program Outcomes (POs)

Upon successful completion of the B.Sc. Computer Science (Entire), the student should have met the following Outcomes:

PO1: Disciplinary Knowledge: Graduates will gain in-depth understanding in their specific major or discipline, mastering the foundational principles and theories, as well as advanced concepts. Execute strong theoretical and practical understanding developed from the specific programme in the area of work.

PO2: Problem-Solving Skills: Graduates will learn to use their knowledge to identify, analyze, and solve problems related to their field of study.

PO3: Analytical Skills: Graduates will gain the ability to collect, analyze, interpret, and apply data in a variety of contexts. They might also learn to use specialized software or equipment.

PO4: Research Skills and Scientific temper: Depending on the field, graduates might learn how to design and conduct experiments or studies, analyze results, and draw conclusions. They might also learn to review and understand academic literature.

PO5: Communication Skills: Many programs emphasize the ability to communicate effectively, both orally and in writing. Graduates may learn to present complex information clearly and succinctly, write detailed reports, and collaborate effectively with others.

PO6: Ethics and Professionalism: Graduates may learn about the ethical and professional

standards in their field, and how to apply them in real-world situations.

P07: Integration: Integrate knowledge of Computer Science with associated subjects like mathematics, statistics, electronics etc. to build and explore problem solving concepts.

Program Specific Outcomes (PSO):

PSO1: Technical Expertise: Implement fundamental knowledge of core and programming computer subjects like C programming, operating system etc. For developing effective technical and computing solutions by incorporating creativity and logical reasoning.

PSO2: Successful Career: Deliver professional services and knowledge with updated new technologies like, Python, HTML, and PHP etc. in Computer science career.

PSO3: Interdisciplinary and Life Long Learning: Develop Statistical, mathematical and Electronical Computation abilities. It also develops analytical, reasoning and logical abilities of students. Undergo higher studies, certifications and technology research as per market needs.

PSO4: Human Values and Ethics: Understand professional and ethical responsibilities in order to work at different positions in organizations and at a societal context.

Course Outcome (COs)

B. Sc. Computer Science (Entire) Part I

Course Title : C Programming

CO1: Understand the concept of design tools (Algorithm and Flowchart) to given solution to the problem.

CO2: Use basics of C language syntax as identifiers, keywords, variables, data types and operators

CO3: Apply the concept of branching, looping, decision-making statements and Array for given problem.

CO4: Break a large problem into smaller part, writing each part as a function and develop a C Program.

Course Title: Operating System

CO1: Understand basic concepts of operating system, services and their structures.

CO2: Illustrate the concept of process and process life cycle and acquire the knowledge of CPU and I/O concepts.

CO3: Implement the issues and challenges of memory management and file management concept

CO4: Understand the concept of resource allocation and concept of deadlock with its prevention, avoidance, detection and recovery.

Course Title: C Programming Lab

CO1: Understand basic structure of C Programming, declaration and usage of variables, use of data type and operators.

CO2: Implement control structures to develop a C program.

CO3: Apply and write C Program to implement one dimensional array.

CO4: Define a user defined function to give solution to given problem.

Course Title: Discrete Mathematics for Computer Science

CO1: Apply basic counting principles and combinatorial arguments.

CO2 : Solve linear recurrence relations with constant coefficient.

CO3: Analyze the logical structure of statements symbolically, including the proper use of logical connectives.

CO4: Construct truth tables, prove or disprove a hypothesis and evaluate the truth of a statement using the principles of logic.

Course Title: Algebra

CO1: Apply fundamental concepts in Number theory to solve problems on congruence.

CO2: Solve problems based on Fermat's theorem and residue classes.

CO3: Use fundamental concepts in Mathematics like sets, relations and functions.

CO4: learn basic concepts like poset, lattice, Boolean algebra and apply them to find CNF and DNF.

Course Title: Fundamental Electronics

CO1: Understand the concept of electronics components. CO2: Understand the transistor Applications.

CO3: To study and understand the amplifier and oscillator concept.

CO4: To study the concept of operational amplifier and Integrated circuit.

Course Title: Basic Digital Electronics

CO1: Understand the concept of Number Systems, CO2: Understand different Computer Codes, CO3: Understand different Logic Gates & Boolean Algebra, CO4: Understand various Combinational Logic circuits,

IKS - I: Course Title: Vedic Mathematics

CO1: To perform simple arithmetic calculations with speed and accuracy

CO2: To generate tables of any number

CO3: To perform products of large numbers quickly

Course Name: Business Statistics using MS Excel Practical – I

- A) perform the visual analysis of data by means of simple diagrams and graphs, also to locate outliers using Excel functions
- B) get basic knowledge of descriptive statistics for data analysis
- C) get the basic knowledge of concepts of spread of data and exhibit variation in data by computing measures of dispersion.
- D) get the knowledge of type and shape of frequency distribution using skewness and kurtosis measures

Course Title: Advanced C Programming

CO1: Apply code reusability with functions and pointer, Implement string in C programs.

CO2: Understand how to allocate memory at runtime using different memory allocation functions.

CO3: Understand the need of structure and implement the structure with real life examples.

CO4: Understand the basics of file handling mechanism and uses of preprocessors.

Course Title: Advanced C Programming Lab

CO1: Understand how to reuse code using functions and pointers.

CO2: Implement memory allocation functions to allocate memory at run time.

CO3: Define a structure to declare the data members of different data types according to needs.

CO4: Handle different file handling functions and preprocessors.

Course Title: Essentials of Software Engineering

CO1: Understand the problem domain to choose process models correctly.

CO2: Choose software projects using appropriate design notations

CO3: Measure the product and process performance using various metrics.

CO4: Evaluate the system with various testing techniques and strategies

Course Title: Graph theory

CO1: Achieve command of the fundamental definitions and concepts of graph theory.

CO2: Model problems using graphs and solve these problems algorithmically.

CO3: Illustrate fundamentals of spanning tree, circuits and cut-sets.

CO4: Apply this knowledge in (especially) computer science applications.

Course Title: Group and Coding Theory

CO1: Learn Group structure and its properties.

CO2: Understand fundamental properties of sub-groups, cyclic groups, permutation groups.

CO3: identify different types of group structure and apply them in Cryptography

CO4: Compile the concepts, properties, aspects of Algebra and apply them in computer science.

Course Title: Sensors and Signal Conditioning

CO1: On completion of the course, the students will be able to: CO1: After completion of this course, student will be able to understand the sensors.

CO2: Describe the working principle, selection criteria and applications of various transducers used in the instrumentation systems.

CO3: Getting a knowledge of signal conditioning circuits, data converters & digital instruments.

CO4: Understanding of different Actuators, Data Acquisition Systems & Data loggers.

Course Title: Advanced Digital Electronics

CO1: Understand the Sequential Circuits like Flip-Flop,

CO2: Understand the various digital Counters & Shift registers,

CO3: Understand 8-bit Microprocessor-8085 architecture,

CO4: Understand 8085-microprocessor Instruction set & assembly language programming.

Course Name: Business Statistics using MS Excel Practical – II

- A) get the basic knowledge of bivariate data analysis by computing correlation coefficient and performing linear regression analysis.

- B) get the knowledge of discrete probability distributions.
- C) implement the probability distribution concepts using model sampling.
- D) acquire the insights of time series and index number theories with its application.

B. Sc. Computer Science (Entire) Part II

Course Title: RDBMS With MySQL

After completion of this course student should be able to

Understand the concept of Database, Database management system Concept of Data models

Understand of MySQL with different Commands (Create, insert, select, update, Delete)

Understand different SQL Operators, functions and clauses

Design & develop proper database and get Knowledge of Sub Queries and Joins

Course Title: Object Oriented Programming using C++

Understand basic concepts of object-oriented programming and Use of various control structures to improve programming logic.

Design classes, objects and functions.

Use constructor and destructor.

Implement inheritance and polymorphism concept.

Course Title: Data structure using C++

Understand concept of data structure and concept of array operations and applications of array.

Understand different sorting and searching algorithms for problem solving.

Implement algorithms to solve problems using appropriate data structures.

Understand implementations of linked list and basics of Trees.

Course Title: System Analysis & Design

Understand concept of system, life cycle of system, different fact-finding techniques in system analysis.

Design different charting techniques like decision table, decision trees, ERD, DFD to develop a System.

Understand input and output design of a system and also different testing techniques.

Design different systems using system development life cycle.

Course Title: HTML & CSS (Web Technology)

1. Understand basic as well as advanced concepts of HTML
2. Understand basics of CSS to design a page.
3. Design and develop website using HTML and CSS

Course Title: Java Script

1. Understand basics of Java Script
2. Design a web page to interact with user.
3. Handle different events like mouse, key, focus for user interaction.
4. Design web form using JQuery

Course Title: Computer Organization

Understand code converters, digital comparators and counter design.

Understand design of memory system with its expansion and mapping techniques.

Understand various data transfer techniques in digital computer and the I/O interfaces.

Understand the basics of register, stack, organization and study of ALU with instruction format.

Course Title: Computer Instrumentation

Describe the working principle, selection criteria and applications of various transducers used in instrumentation systems

Gain knowledge about different type of signal conditioning circuits, data converters.

Understand various types of Actuators and Data Acquisition systems.

Understand construction, working principle of different types of digital instruments and display devices.

Course Title: Microcontroller Architecture and Programming

Understand the architecture of 8051 microcontroller and its comparative family.

Understand the detailed Instruction set of 8051 with addressing modes.

Understand Facilities in 8051 viz. Timer, Counter, Delay calculations and Serial Communication with its operating modes.

Understand 8051 and Real-world interfacing using I/O peripherals.

Course Title: Principles of Electronics Communication

Understand the functioning of basic communication system.

Understand the concept of basic analog modulation techniques.

Understand digital modulation and demodulation techniques.

Understand wireless communication systems and mobile communication concept.

Course Title: Linear Algebra

Understand the concept of linear transformation and its application to real life applications.

Evaluate mathematical expressions to compute quantities that deal with linear systems and

eigenvalue problems.

Analyze mathematical statements and expressions.

Reason mathematically. Understand the notion of vector space, subspace, basis.

Course Title: Numerical Methods

Understand how to find the roots of transcendental equations.

Understand learn numerical solution of differential equations.

Understand how to find the roots of transcendental equations.

Understand how to interpolate the given set of values.

Course Title: Computational Geometry

Understand how to represent point, lines, transformations and matrices,

Understand how to Various types of transformations.

Solve multiple transformation and projection on three dimensional.

Understand the concepts curve, its properties and B-spline curve.

Course Title: Operation Research

To learn about characteristics, scope of operation Research.

Understand the Assignment problem.

Understand the Transportation problem Initial Solution and Optimization.

To know the fundamental of game theory.

B. Sc. Computer Science (Entire) Part III

Course Title: Core Java

Develop Object oriented software application

Implement Object oriented concepts using java)

Develop multithreading applications

Handle exceptions while executing programs

Course Title: C# Programming

Understand working of .Net Framework

Demonstrate concept of Object-oriented programming using C#

Study importance and applications of exception handling

Understand working of file handling in C#.

Course Title: Software Engineering

Understand the problem domain to choose process models correctly.

Choose software projects using appropriate design notations.

Measure the product and process performance using various metrics.

Evaluate the system with various testing techniques and strategies

Able to analyze, design, verify, validate, implement, and maintain software systems.

Course Title: Data Communication

Develop an appreciation for what is involved in learning models from data.

Understand a wide variety of learning algorithms.

Understand how to evaluate models generated from data.

Course Title: English for communication - III

comprehend communication process, methods of communication and flow of communication in business context.

Apply acquired LSRW skills into real life situations and in professional context.

Compose effective business letters using standard language, style and structure.

Course Title: Advanced Java

Develop GUI using Java.

Handle Database connectivity using java.

Develop dynamic web pages using servlet and JSP.

Develop client-server application.

Course Title: Introduction to ASP.NET

Understand working of Asp.Net web application

Demonstrate Asp.Net server controls

Study database operations using ADO.Net.

Understand importance and working of state management.

Course Title: Software Project Management

Implement the basics of Project Management.

Choose correct Scheduling Techniques as per the software

Develop Team Development skills and reduce conflicts

Implement various Software Quality Standards.

Using CASE tools, Software Re-Engineering for creating efficient software.

Course Title: Computer Networks

Familiar with network basics concepts like protocols, topology etc.

Familiar with OSI layered model services.

Understand with switching and routing concepts in networking technologies.

Familiar with network security concepts.

Course Title: English for communication - IV

Comprehend the employment skills to have an effective first impression.

Construct effective technical reports and prepare effective presentations.

Use various interpersonal skills as per the need of situation and context.