

**Vivekanand College, Kolhapur (Autonomous)**  
 Department of Computer Science Entire  
 Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Pallavi M Dessai

Programme B.Sc computer science entire Semester-I

Subject:- computer science Course Title: Programming in C-I

Month :- August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Programming Concepts	Program and programming, Programming languages, Algorithm: Definition, Examples Characteristics of an algorithm, Notation of Algorithm Flowcharts- Definition, Symbol, features.
24		24		
Month September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to C	History of 'C', Structure of 'C' program, Program execution phases, Character set and keywords, Constant and its type, Variable and its Data types in 'C', Operators- Arithmetic, logical, relational, bitwise, increment, decrement ,conditional, operator precedence Programming examples
24		24		
Month October			Module/Unit:	Sub-units planned
24		24	Input-Output Statements Control Structures	Character input-output - getch(), getche(),getchar(),putchar()  String input-output - gets(), puts() , Formatted input-output - printf(), scanf()  Conditional Control Statements -if -if-else -nested if-else -else-if ladder
Month November			Module/Unit:	Sub-units planned
24		24	Control Structures	Multiple Branching Control Statement - switch-case Loop Control Statements - while -do-while -for -Nested Loops Jump Control statements -break -continue - goto -exit



Name and Signature of Teacher

Pallavi M. Dessai




Name and Signature of HoD  
**Head**

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Department of Computer Science Entire  
Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Pallavi M Dessai

Programme B.Sc computer science entire Semester-II

Subject:- computer science Course Title: Programming in C-II

Month January			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Arrays and strings</b>	Array –One dimensional arrays – Declaration of 1D arrays –Initialization of 1D arrays –Accessing element of 1D arrays –Reading and displaying elements Two dimensional arrays –Declaration of 2D arrays –Initialization of 2D arrays – Accessing element of 2D arrays – Reading and displaying elements Initializing strings,Reading string , string handling functions (strcpy(), strcmp(), strcat(), strlen(), strrev())
24		24		
Month : February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Function Pointer, dynamic memory allocation and Structure</b>	What is function? Advantages of using functions, Function Prototype –Defining a function, Calling a function ,Return statement ,Types of functions ,Recursion, Local and global variables Def of Pointer, Declaration of Pointer Variables, Assigning Address to Pointer Variables ,De-referencing Pointer Variables,
24		24		
Month : March			Module/Unit:	Sub-units planned
24		24	<b>Pointer, dynamic memory allocation and Structure</b>	Pointer Arithmetic –Pointer comparisons –De-reference and increment pointer – Null pointer , Parameter Passing Techniques – call by value, call by address, malloc() –calloc() –realloc() . – free() Why is structure used? What is structure?
Month : April			Module/Unit:	Sub-units planned
24		24	<b>File Handling</b>	Concept of File ,Text and binary files, Opening and closing files, File opening mode- read, write, append character and integer handling ( getch(), putc() , getw() , putw() ), Formatted input-formatted output



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**Annual Teaching Plan**

Name of the teacher: Miss Pallavi M. Dessai

Programme B.Sc. computer science entire Semester-V

Subject: computer science

Course Title: Operating system

Month August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Operating System overview</b>	Introduction and definition of operating system Objectives and function Types of operating system , Operating system services , Protection: input output, memory and CPU protection System calls: types of system calls and system call implementation , System programs and application programs
16		16		
Month September			Module/Unit:	
Lectures	Practical's	Total	<b>Process Management</b>	Process concept, Process states, Process control block (PCB) Context switching , Threads, concept of multithreads, benefits of threads and types of threads Process scheduling: scheduling objectives, types of schedulers, scheduling criteria, scheduling algorithms- Preemptive and non-preemptive. FCFS, SJF, priority, round robin, multiple queue, multilevel feedback queue , Process synchronization, critical section problem, semaphores.
16		16		
Month December			Module/Unit:	Sub-units planned
16		16	<b>Memory Management</b>	Logical and physical address map , Swapping Memory allocation- contiguous memory allocation- fixed and





				<p>variable partition, internal and external fragmentation and compaction.</p> <p>Paging and virtual memory, demand paging, locality of reference, page fault, dirty page/ dirty bit, page replacement policies FIFO, optimal, LRU, MFU</p> <p>Disk structure, Disk scheduling-FCFS, SSTF, SCAN, LOOK, CSCAN, CLOOK</p>
<b>Month</b>			<b>Module/Unit:</b>	<b>Sub-units planned</b>
16		16	<b>File management and Deadlocks</b>	<p>File concept, access methods- sequential and direct, file types and operations</p> <p>Directory structure- single level, two level, tree structure, acyclic graph, general graph directory structure</p> <p>Allocation method- contiguous, linked and indexed</p> <p>Definition of deadlock, characteristics</p> <p>Deadlock prevention, detection and recovery</p>



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**Annual Teaching Plan**

Name of the teacher: Pallavi M. Dessai

Programme B.Sc computer science entire Semester-VI

Subject: computer science

Course Title: Linux operating system

Month : March			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Linux Basics</b>	
16		16		<ul style="list-style-type: none"> <li>•What is an OS? What is Linux, history of Linux, Linux distribution</li> <li>The shell, kernel, Linux file system, login, logout</li> <li>Different general purpose utility commands (GPU)- cal, date, bc, who</li> <li>Concept of directory, home directory, directory handling commands- PWD, cd, mkdir, rmdir, ls, relative and absolute path</li> <li>Basic file attributes metacharacters.</li> <li>Access permission chmod command</li> <li>File handling commands- cat, cp, mv, rm, lp, man, pipe</li> </ul>
Month : April			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Basic filters</b>	
16		16		<ul style="list-style-type: none"> <li>What is a filter, head, tail, sort, grep, sed, awk</li> <li>regular expressions and its types ,environment variables-PATH, USER, HOME, UID, TERM, SHELL</li> <li>concept of process, PID, PS, KILL, FREE</li> </ul>
Month : May			Module/Unit:	Sub-units planned
16		16	<b>VI editor</b>	<ul style="list-style-type: none"> <li>What is the VI editor- command mode, insert mode, last line mode</li> <li>VI editing commands, moving within a file, saving and closing the file</li> <li>Command mode</li> </ul>



				movement, command mode- making changes, repeating VI actions
Month : June		Module/Unit:		Sub-units planned
16		16	Essential shell programming	Linux shells, shell scripting, running a shell script Statements- read, echo, exit, expr Conditional statements- test, if, case Looping statements- while, until, for Positional parameters- set, shift

*Pallavi M. Dessai*

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## Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2022-2023

### Annual Teaching Plan

Name of the teacher: Mr.Rajesh R Mane

Programme BSc Semester-I

Subject: Introduction to Computer –II Course Title: B.Sc. Computer Science Entire(BCS)

Month August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Introduction to Computer and Basic Organization</b>	<ul style="list-style-type: none"> <li>• Introduction,History, Characteristics &amp; features of Computers.</li> <li>• Components of Computers.</li> <li>• Organization of Computer.</li> <li>• Generation of Computers .</li> <li>• Classification of Computers</li> <li>• Computer Languages</li> <li>• Types of Programming Languages</li> <li>• Machine Languages</li> <li>• Assembly Languages</li> <li>• High Level Languages</li> <li>• Assembler, Linker, Loader, Interpreter &amp; Compiler.</li> <li>• Introduction to Computer Virus, how does it spread? Symptoms of it, Types of Virus, Antivirus, Prevention from Virus.</li> </ul>
24	12	36		
Month September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Input, Output Devices and Concept of Memory</b>	<b>Input Devices</b> :Touch screen , OMR, OCR, Light pen ,Scanners <b>Output Devices</b> : Digitizers, Plotters, LCD, Plasma Display, Printers <b>Types of Memory (Primary And Secondary)</b> RAM, ROM, PROM, EPROM, Secondary Storage Devices ( FD, CD, HD, Pendrive, DVD, Tape Drive,USB )
24	12	36		
Month October			Module/Unit:	Sub-units planned
24	12	36	<b>Operating System concepts</b>	Why Operating System, History of Operating system, Functions of Operating System, Types of Operating System, Batch O.S., Multiprogramming O.S., Time Sharing O.S, Personal Computers O.S., Network O.S.
Month Novemeber			Module/Unit:	Sub-units planned





24	12	36	MS PowerPoint , MS Excel and MS Access	<p><b>MS-Power point</b> - Introduction to PowerPoint, Creating a Presentation, PowerPoint views, Slide show, Formatting slides, Slide transition &amp; adding special effects, Inserting pictures, sound, chart.</p> <p><b>MS Excel</b>- modes, Move/Copy text, Insert/Delete Rows and Columns, Formatting a Worksheet, Print the workbook, Charts, Naming Ranges, and Conditional Formatting ,Filtering the data from database ,Drawing toolbar, Freeze Panes, Splitting the worksheet.</p> <p>Goal Seek ,Pivot table and Hyperlinks. Functions: Date and Time function, Statistical, Math and Financial Functions.</p> <p><b>MS Access</b>-Create Tables,data types, Field properties,Validation rules. Create Query,Create Forms, Create Reports.</p>
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Name and Signature of Teacher

Mr.Rajesh R Mane



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Department of Computer Science Entire

Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Mr.Rajesh R Mane

Programme BSc Semester-II

Subject:Introduction to Computer –II Course Title: B.Sc. Computer Science Entire(BCS)

Month january			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Computer Network Basic Concepts</b>	Basic elements of communication systems.- Sender,receiver and medium .Data Transmission Modes- Simplex,Half Duplex,Full Duplex. Data Transmission Media- Twisted pair,Coaxial cable,Microwave ayaten,satellite etc .Definition Networking,Features of
24	12	36		





				Networking..Types Of Networking,Network Topologies.
Month Febuary			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	<b>Introduction to HTML</b>	HTML Documents Basic structure of an HTML document Creating an HTML document Mark up Tags Heading-Paragraphs Line Breaks HTML Tags.
24	12	36		
Month March			Module/Unit:	Sub-units planned
24	12	36	<b>Images, Tables Frames, Image Maps, Forms in HTML</b>	Introduction to elements of HTML Working with Text Working with Lists, Tables and Frames Working with Hyperlinks, Images and Multimedia Working with Forms and controls.
Month April			Module/Unit:	Sub-units planned
24	12	36	<b>Introduction to Cascading Style Sheets</b>	Concept of CSS Creating Style Sheet CSS Properties CSS Styling(Background, Text Format, Controlling Fonts) Working with block elements and objects Working with Lists and Tables CSS Id and Class Box Model(Introduction, Border properties, Padding Properties, Margin properties) CSS Advanced(Grouping, Dimension, Display, Positioning, Floating, Align,Pseudo class, Navigation Bar, Image Sprites, Attribute sector) CSS Color



				Creating page Layout and Site Designs.
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Department of Computer Science Entire

Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Mr. Rajesh R Mane

Programme BSc Semester-V

Subject: E-Commerce Course Title: B.Sc. Computer Science Entire (BCS)

Month August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction	
16		16		History, Overview, Definition of E-commerce. Scope & Goals of E-commerce. Advantages and Disadvantage of E-commerce. Applications of E-commerce. Challenges of E-commerce. Roadmap of e-commerce in India. Traditional commerce Vs E-commerce.
Month September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Electronic Data Interchange (EDI)	Meaning of EDI. History of EDI. EDI Working Concept.



16		16		<p>EDI Model. • EDI Standards. • Implementation difficulties of EDI. Advantages and Disadvantage of EDI. • E Commerce Business Models (B2B, B2C, C2C, C2B, B2G, G2G, G2C) • E-commerce marketing and business strategies, Social networks and online • communities. History and Development, Use of Internet. Domain Names. • Internet Service provider. World Wide Web. • Uniform Resource Locator. Web Browsers. • Email, Voicemail, Web Search Engines •</p>
Month October			Module/Unit:	Sub-units planned
16		16	E-Payment Systems	<p>Electronic Payment concept. Steps for Electronic Payment. Types of E-Payment Systems- Prepaid, Postpaid. • Electronic fund Transfer. Net Banking. • Case Study : • 1. List out the Web sites dealing with E- Commerce. 2. Survey of ATM Center. 3. Create a Website with minimum details. 4. Log on to trade Website and make a trial order for purchase of an item</p>
Month November			Module/Unit:	Sub-units planned
16		16	E-Security Issues and Threats	<p>Secure Transaction concept – Authentication &amp; Authorization. Privacy on Internet. • Computer Crime Types and laws. Viruses - Types of Attacks. • Vulnerability of Internet Sites. Denial-of-Service attacks. • Cryptography- Encryption, Decryption. SSL –SET. • Firewall. • Digital</p>





				Certificates. Digital signatures•
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Name and Signature of Teacher

Mr.Rajesh R Mane



*P. Desai*

Name and Signature of HoD

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Department of Computer Science Entire

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**Annual Teaching Plan**

Name of the teacher: Mr.Rajesh R Mane

Programme BSc Semester-VI

Subject: Data warehouse and mining

Course Title: B.Sc. Computer Science Entire(BCS)

Month january			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to data warehousing	What is Data Warehousing? How Data warehouse works?• Why a Data Warehouse is Separated from Operational Databases• Data Warehouse Applications• Types of Data Warehouse• Difference between Data Warehouse (OLAP) and Operational Database(OLTP)•
16		16		
Month Febuary			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to data mining	What is data mining? Process of knowledge discovery in databases (KDD)• Getting to Know Your Data• Data Objects and Attribute Types, What Is an Attribute, Nominal Attributes , Binary• Attributes, Ordinal Attributes, Numeric Attributes , Discrete versus Continuous Attributes
16		16		
Month march			Module/Unit:	Sub-units planned



16		16	Data preprocessing and association rule mining	Data Preprocessing: An Overview Data Quality: Why Preprocess the Data?• Major Tasks in Data Preprocessing, Data Cleaning (Missing Values, Noisy Data) , Data• integration, Data Transformation , Data reduction, Data Discretization, Association Rule Mining, Market basket analysis, Apriori algorithm•
Month April			Module/Unit:	Sub-units planned
16		16	Classification, prediction and clustering	Classification, Classification Requirements, Classification vs Prediction, Issues related to Classification and Prediction Decision tree• Prediction• Regression analysis• Clustering: What Is Cluster Analysis? Different Types of Clustering, K-means: The Basic• K-Means Algorithm



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# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2022-2023

## Annual Teaching Plan

Name of the teacher: Mrs Vaishali C. dalvi

Programme : B.Sc. Computer Science Entire (BCS ) Semester-VI

Subject: computer science

Course Title: ASP.Net Programming

Month –January			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Exception Handlin	Errors-types of errors • Structured Exception – Try__Catch__End Try, finally, throw, • Unstructured Exception – On error GoTo, resume ,resume next. • Tracing Errors – Break Point, watch window, quick watch window, autos
16	16	32		
Month –February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Database Connectivity in C#	Database: Connections, command, Data adapters, and datasets • Connection to database using MS-Access, SQL Server • Data binding with controls like Text Boxes, List Boxes, Data grid etc. Data form wizard, • Data validation
16	16	32		
Month –March			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Using Crystal Report	Connection to Database, Table, Queries, Create and Modify Report, • Formatting Fields and inserting Header, Footer, Group • Details Working with formula fields, Parameter fields • Working with Multiple Tables
16	16	32		
Month –April			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to ASP.Net with c#	Introduction to ASP. NET • Working with web forms: Buttons, Text Boxes, Labels, Check Boxes, Radio Buttons, Tables, Panels, Images, Image Buttons, List Boxes, Drop-Down Lists, Hyperlinks and Link Buttons
16	16	32		

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Department of Computer Science Entire

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## Annual Teaching Plan

Name of the teacher: Mrs. Vaishali C. Dalvi

Programme BSc Computer Science Entire (BCS)

Semester- V

Subject: computer science

Course Title: C# programming

Month –August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction	<ul style="list-style-type: none"><li>• Event driven &amp; sequence driven programming</li><li>• Introduction to c#, .net framework architecture</li><li>• Assembly Namespace, Garbage collector JIT compilers</li></ul>
16	16	32		
Month –September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Data Types & Control Structure	<ul style="list-style-type: none"><li>• Variables, expressions, constants, Data Types , Operators, implicit &amp; explicit conversions</li><li>• Conditional statements</li><li>• Loop statements</li><li>• Unconditional statement</li></ul>
16	16	32		
Month –October			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Working with Classes	<ul style="list-style-type: none"><li>• Class &amp; objects</li><li>• Constructors</li><li>• Inheritance</li><li>• Polymorphism</li></ul>
16	16	32		
Month –November			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Developing GUI applications with Win Form	<ul style="list-style-type: none"><li>• Different controls in win form – Forms, textbox, labels, buttons, radio buttons, check box, combo box, list box, Date time picker</li><li>• Important properties of controls, Important events of each control</li><li>• Menus, built in dialog box – input box, message box, Mouse events – click, double click, enter, hover, leave, move, Keyboard events – key press, key down, key-up</li></ul>
16	16	32		

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## Annual Teaching Plan

Name of the Teacher: Miss Nita N . Bargale

Programme BSc Entire (BCS)

Semester- V

Subject: computer science

Course Title: core java

Month -August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to java	<ul style="list-style-type: none"> <li>•A Short History of Java,</li> <li>• Features of Java,</li> <li>• Java tools-JDK, JRE.</li> <li>• structure of java program –compilation and execution of program</li> <li>• JVM, Types of Comments, Data Types, Final Variable</li> <li>• Type Conversions -implicit and explicit conversion</li> <li>• Accepting input from console (Using scanner class and command line arguments).</li> </ul>
16	16	32		
Month -September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	control statements, Classes and objects	<ul style="list-style-type: none"> <li>•Control statements, for-each loop, Varargs, Declaring 1D, 2D array</li> <li>• Defining Classes, objects and method - method overloading</li> <li>• Array of Objects, Constructor, Overloading Constructors and use of 'this' Keyword</li> <li>• static keyword,</li> <li>• methods (equals (), toString (), Wrapper Classes, finalize () Method</li> </ul>
16	16	32		
Month -October			Module/Unit:	Sub-units planned
16	16	32	Package, Inheritance and Interface	<ul style="list-style-type: none"> <li>•Package- Introduction to all predefined packages, User Defined Packages, Access Specifiers</li> <li>•Inheritance -Types of Inheritance-</li> <li>• Method Overriding</li> <li>• Super Keyword, final keyword</li> <li>• abstract class and abstract methods</li> <li>• Defining and Implementing Interfaces</li> </ul>
Month -November			Module/Unit:	Sub-units planned
16	16	32	Exception Handling and Multithreading	<p>Exception Handling- Concept, types, try and catch block, multiple catch, Try-catch –finally block, throw and throws clause, finally clause.</p> <ul style="list-style-type: none"> <li>• Multithreading- What are threads?, difference between process and thread, Life cycle of thread, methods of thread class, runnable interface, isAlive() and join() methods, Thread priorities , Running multiple threads ,Synchronization and interthread communication- wait() , notify(),notifyAll() methods.</li> </ul>

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Miss. Nita N.Bargale



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## Annual Teaching Plan

Name of the teacher: Miss Nita N Bargale.

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

Semester-VI

Subject: computer science

Course Title: Advance java

Month –January			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	User Interface Components with AWT and Swing	Awt-What is AWT? classes hierarchy, windows fundamentals Frame Windows Event Classes, Event Listener Interface: AWT Controls, Layout Managers Swing- What is Swing? Difference between AWT and Swing., The MVC Architecture & Components
16	16	32		
Month –February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	JDBC	What is JDBC ? Steps for connectivity between Java program and database. Type of drivers, Simple program-database operations like creating tables, CRUD(Create, Read, Update,Delete) operations using SQL
16	16	32		
Month –March			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Servlet	Introduction of servlet: How servlet work, model diagram Uses of servlet, Life cycle of servlet, Servlet API: packages- javax. servlet and javax.servlet.http Session Tracking Mechanisms, HttpSession, Cookies, URL-Rewriting, Hidden-Form Fields
16	16	32		
Month –April			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	JSP	Introduction, Jsp LifeCycle, Jsp Implicit Objects & Scopes, Jsp Directives, Jsp Scripting Elements , Simple application using JSP. Difference between JSP and Servlet
16	16	32		

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Miss. Nita N.Bargale



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Note: In the above format, for each month for each teacher.



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**Annual Teaching Plan**

Name of the teacher: Miss Rudhika M.Patil

Programme: B.Sc. Computer Science Entire (BCS) -II

Semester-III

Subject: Computer Science

Course Title: Object Oriented Programming Using C++

Month Aug-22			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Introduction to C++ and Basics of Object Oriented programming Concepts	<ul style="list-style-type: none"> <li>• Introduction to C++: Structure of C++ program, Input and output Streams,</li> <li>• Memory</li> <li>• management operators: new and delete, this pointer, Reference variables, Control Structures (looping and branching statements)</li> <li>• Functions: inline function, default argument, function overloading.OOP</li> <li>• Concepts: Data abstraction, Data Encapsulation, Inheritance, Polymorphism, Message Passing</li> </ul>
16	12	28		
Month Sep-22			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Class and Object	<ul style="list-style-type: none"> <li>• Class declaration, Access modifiers: public, private, protected, defining member functions (inside the class and outside the class)</li> <li>• Static data members and member function, Array of object, friend function and friend class.</li> </ul>
16	12	28		
Month Oct-22			Module/Unit:	Sub-units planned
16	12	28	Constructor, Destructor, Operator Overloading	<ul style="list-style-type: none"> <li>• Constructor and Destructor: Definition and features of constructor, Types of constructor,</li> <li>• Definition, syntax and use of Destructor</li> <li>• Operator overloading :Concept, Rules for operator overloading, Unary and Binary Operator overloading</li> </ul>
Month Nov-22			Module/Unit:	Sub-units planned



16	12	28	<b>Inheritance and Polymorphism</b>	<ul style="list-style-type: none"> <li>Inheritance: Concept, Definitions of base class and derived class, Types of inheritance (Single, Multiple, Multilevel, Hierarchical and Hybrid inheritance)</li> <li>Polymorphism: Definition of polymorphism, Types of polymorphism, virtual function, pure virtual function, Abstract class..</li> </ul>
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Name and Signature of Teacher  
Miss Radhika M. Patil



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Department of Computer Science Entire  
Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Miss Radhika M. Patil

Programme: B.Sc. Computer Science Entire (BCS) - II

Semester-IV

Subject: Computer Science

Course Title: Introduction to Data Structure Using C++

Month Jan-23			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Introduction to Data structure and Linear Data Structures (Array, Stack, Queue)	<ul style="list-style-type: none"> <li>Introduction to Data Structure Definitions: Data types, Data Object, Data structure, Abstract Data Type (concept), Data Structure classification</li> <li>Algorithm Efficiency: Complexity, Big O notation,</li> <li>Array: Definition, Types of array (one dimensional and multidimensional), Sparse matrices.</li> </ul>
16	12	28		
Month Feb-23			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Stack and Queue	<ul style="list-style-type: none"> <li>Stack: Definition of Stack, Operations on</li> </ul>



16	12	28		Stack, Static Implementation of stack <ul style="list-style-type: none"> <li>• Applications of stack: Recursion, inter conversions between infix, prefix and postfix expressions.</li> <li>• Queue: Definition of Queue, Operations on Queue, Static Implementation of</li> <li>• Queue.Types of Queue: Linear, Circular and Priority queue</li> <li>• Applications of Queue.</li> </ul>
Month Mar-23			Module/Unit:	Sub-units planned
16	12	28	Linked List, Trees, Searching and Sorting algorithms	<ul style="list-style-type: none"> <li>• Linked List: Concept of Linked List, Operations on Linked List, Implementation of Linear Linked List, Types of Linked List,</li> <li>• Implementation of stack and queue using linked list</li> <li>• Trees: Definition of tree, Tree terminologies, Types of Tree, Tree Traversal(inorder, preorder, postorder).</li> </ul>
Month Apr-23			Module/Unit:	Sub-units planned
16	12	28	Searching and Sorting	<ul style="list-style-type: none"> <li>• Searching: Linear search and binary search</li> <li>• Sorting:Bubble Sort, Selection Sort, Insertion sort, Merge Sort</li> </ul>

*Radhika*

Name and Signature of Teacher

Miss Radhika M. Patil



*Prasad*

Name and Signature of HoD

**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.



**Vivekanand College, Kolhapur (Autonomous)**  
 Department of Computer Science Entire  
 Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Miss Radhika M.Patil

Programme: B.Sc. Computer Science Entire (BCS) -III Semester-V

Subject: Computer Science Course Title: Data Communication

Month Aug-22			Module/Unit:	Sub-units planned
Lectures	Practical	Total	<b>Basics of Data communication</b>	<ul style="list-style-type: none"> <li>• Concept of data communication, Components: sender, receiver, message, Transmission media, Data Representation,</li> <li>• Data Flow- Simplex, Half-duplex, and Full-duplex.</li> <li>• Networks: Definition, Advantages and disadvantages.</li> <li>• Network Architecture: Client/Server and Peer to Peer</li> </ul>
16		16		
Month Sep-22			Module/Unit:	Sub-units planned
Lectures	Practical	Total	<b>Transmission media and modes</b>	<ul style="list-style-type: none"> <li>• Guided Media- Twisted-Pair Cable, Coaxial Cable and Fiber Optic Cable.</li> <li>• Unguided Media: Radio Waves, Microwaves, Infrared Waves.</li> <li>• Transmission Modes: Parallel, Serial- Asynchronous, Synchronous, Isochronous</li> </ul>
16		16		
Month Oct-22			Module/Unit:	Sub-units planned
16		16	<b>Multiplexing, Switching Techniques and Protocols and Standards</b>	<ul style="list-style-type: none"> <li>• Multiplexing: Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Time Division Multiplexing.</li> <li>• Switching: Circuit switching- data gram and virtual circuit Switching, Packet Switching and Message Switching.</li> <li>• Protocols: concept, syntax, semantics, Timing</li> </ul>
Month Nov-22			Module/Unit:	Sub-units planned



16		16	Physical Layer and Data Link Layer	<ul style="list-style-type: none"> <li>Physical layer: Digital-to-analog conversion: concept, Amplitude Shift Keying,</li> <li>Frequency Shift Keying, Phase Shift Keying. Analog-to-digital conversion: Pulse Code</li> <li>Modulation (PCM), Delta Modulation (DM). Data link layer: Design issues, Framing,</li> <li>Error Detection and Correction.</li> </ul>
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*Radhika M. Patil*

Name and Signature of Teacher

Miss Radhika M. Patil



*Pooja*

Name and Signature of HoD  
Head

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)  
Department of Computer Science Entire  
Academic Year: 2022-2023

**Annual Teaching Plan**

Name of the teacher: Miss Radhika M. Patil

Programme: B.Sc. Computer Science Entire (BCS) -III Semester-VI

Subject: Computer Science

Course Title: Computer Network

Month Jan-23			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Data Link Layer Protocols, Network Layer	<ul style="list-style-type: none"> <li>Protocols- Sliding window protocol: one bit sliding window protocol, protocol using</li> <li>Go Back N, protocol using selective repeat.</li> <li>Network Layer: Design issues, Concept of Routing.</li> </ul>
16		16		
Month Feb-23			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Network Layer and Transport Layer	<ul style="list-style-type: none"> <li>Routing Algorithms (Shortest Path, Flooding,</li> </ul>



16		16		Distance Vector Routing). <ul style="list-style-type: none"> <li>• Congestion Control Algorithms: Leaky Bucket, Token Bucket .</li> <li>• Transport Layer: Services: connection oriented and connection less services.</li> <li>• Transport Layer Primitives: listen, connect, send, receive, disconnect. Protocols: TCP, UDP.</li> </ul>
Month Mar-23			Module/Unit:	Sub-units planned
16		16	Session and Presentation layer	<ul style="list-style-type: none"> <li>• Session layer: Services: dialog management, synchronization, activity</li> <li>• Management, exception handling Remote procedure calls (RPC).</li> <li>• Presentation Layer: Services- Translation, compression, encryption</li> <li>• Cryptography- Concept, Symmetric key Cryptography (e.g. AES-128, AES-192, AES-256 and DES .Explain any one of them) and Asymmetric key Cryptography (RSA, Diffie-Hellman Algorithm, The Elliptical Wave theory Algorithm. Explain any one of them).</li> </ul>
Month Apr-23			Module/Unit:	Sub-units planned
16		16	Application layer	<ul style="list-style-type: none"> <li>• Application layer: Function. Protocols- Domain name system (DNS), Hypertext</li> <li>• Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), Telnet, File</li> <li>• Transfer Protocol (FTP).</li> </ul>

*Radhika*

Name and Signature of Teacher

Miss Radhika M. Patil



*P. Prasad*

Name and Signature of HoD

**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur,



Annual Teaching Plan

Name of the teacher: Miss. Nadiya Dara Patel

Programme: B.Sc. Computer Science Entire (B.C.S)

Semester-I

Subject: Computer Science  
 to C programming -I

Course Title: Computer Fundamentals and introduction

Month- Aug 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-I	1) Demonstration of peripherals 2) Linking of various peripherals 3) Operation of all keys of keyboard 4) DOS – external and internal commands, batch files commands 5) Windows Operating System –Windows explorer, program manager, control panel, print manager, Creating folders, files, icons, shortcuts
00	12	12		
Month – Sept 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-I	6) MS – WORD – Creating new documents, typing, deleting, selecting text, undo, Redo, formatting text – auto format, formatting characters, drop caps, Paragraphs, line spacing, margins, page setup, headers and footers Writer's tools – spelling checker, auto format, auto correct, find and replace Mail merge – Data source, Main document, creating mail merge document. 7) MS – EXCEL - Creating worksheet, Graphs, resizing graphs, formulas, if statement, types of functions 8) MS ACCESS - Creating data bases, writing queries 9) Write a Program to print biodata 10) Program to perform all arithmetic operations
00	12	12		
Month- Oct 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-I	11) Write a program to check whether given number is even or odd. 12) Write a program to find largest among three numbers. 13) Write a program to display Fibonacci series. 14) Write a program to find Factorial of Given Number. 15) Write a program to reverse the given number.
00	12	12		
Month- Nov 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-I	16) Write a program to find prime number. 17) Write a program to demonstrate switch statement. 18) Write a program to calculate sum and average of given n numbers using array 19) Write a program to calculate Matrix Addition, Multiplication
00	12	12		

Name and Signature of Teacher  
 Miss. Nadiya Dara Patel



Name and Signature of HOD  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**  
 Department of Computer Science Entire  
 Academic Year: 2022-2023  
**Annual Teaching Plan**

**Name of the teacher:** Miss. Nadiya Dara Patel

**Programme:** B.Sc. Computer Science Entire(B.C.S)

**Semester-II**

**Subject:** Computer Science **Course Title:** Computer Fundamentals and introduction to C programming -II

Month- Jan 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-II	1. Write HTML code to develop a web page for giving details of your name, age, address. It contains the different background and foreground color, with different attribute of Font tags like italic, bold, underline etc. and give suitable heading style. 2. Write HTML code to create a WebPages that contains an Image at its left hand side of the page when user clicks on the image; it should open another web page that displays the details of that image. 24. Write a program to find the roots of a quadratic equation 25. Write a recursive program to find the factorial of a number. 26. Create an employee structure and display the same.
00	12	12		
Month- Feb 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-II	4. Create a web page, showing an ordered list of name of your five friends and unordered list of any five your hobbies. 5. Create a HTML document containing a nested list showing the content page of any book. 6. Create a web page which should divide a page into two equal frames & 3 Frames 7. Design a form using all input types 8. Acquaintance with creating style sheet, CSS properties
00	12	12		
Month- March 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-II	9. Working with Background, Text and Font properties. 10 Working with HTML elements box properties in CSS 11. Working with Positioning and Block properties in CSS 12. Designing with cascading style sheet-Internal style sheet & External style sheet 13. Write a program to print the size of all the data types in C and its range. 14. Write a program to convert Fahrenheit to Celsius. 15. Write a program to check whether the given number is a Prime number or not.
00	12	12		
Month- April 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Introduction to computers and programming using C-II	16. Write a program to accept three numbers and find the largest and second largest 17. Write a program to print all prime numbers between any 2 given limits. 18. Write a program to print all the Armstrong numbers between any 2 given limits. 19. Write a program to check whether the string is a Palindrome. 20. Write a program to check whether a given matrix is an Identity matrix or not. 21. Write a program to perform matrix multiplication. 22. Write a program to count the different vowels in a line of text. 23. Write a program to accept two numbers and perform various arithmetic
00	12	12		

Name and Signature of Teacher  
 Miss. Nadiya Dara Patel



Name and Signature of HOD  
**Head**  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.



Name of the teacher: Miss. Nadiya Dara Patel  
 Programme: B.Sc. Computer Science Entire(B.C.S)  
 Subject: Computer Science

Semester-V

Course Title: Software Engineering with UML

Month- Aug 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total		
16	04	20	1.Introduction to software engineering and process models Practical: 1) Operating System practical's	1) Definition of software, definition of software engineering, characteristics of software, System Development Life Cycle (SDLC), phases of SDLC, Software process models: Traditional models- Waterfall model, Prototyping model, Spiral Model, Introduction to Agile software development-concept, advantages, types- scrums, extreme programming(XP).  2) Operating System DOS commands implementation
Month - Sept 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total		
16	04	20	2.Introduction to Requirements Analysis and specification and UML Practical: 2) Operating System practical's	1) Requirement anticipation and investigation Fact finding methods- Interviews, Questionnaires, observation, record review. Software requirements specification (SRS)- need of SRS, characteristic of SRS, structure of SRS, Types of requirements - functional and non- functional Introduction to UML- concept of UML, advantages of UML, applications of UML. 2) OS DOS commands implementation
Month- Oct 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total		
16	04	20	3.UML Diagrams- I Practical: 3) Operating System practical's	1) Classification of UML diagrams, Use case diagrams-overview, identifying actors and use cases, communication and relationships, example. Class diagrams: classes and objects, association and links, multiplicity, inheritance, example. State machine diagram- overview  2) Operating System DOS commands implementation
Month- Nov 2022			Module/Unit:	Sub-units planned
Lectures	Practical's	Total		
16	04	20	4.UML Diagrams- II and introduction to Software Testing  Practical: 4) Operating System practical's	1) Interaction diagrams - overview, Sequence Diagram-concept, activation, example. Activity diagram-concept, activities, actions, decisions, control nodes, fork and join node, example. Software Testing overview - concept, Types of testing -Unit testing, Acceptance testing ( $\alpha / \beta$ ), Integration testing, Black box testing, White box testing.  2) Operating System DOS commands implementation

*Nadiya*

Name and Signature of Teacher  
 Miss. Nadiya Dara Patel



*Pooja*

Name and Signature of HOD  
 Head  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.



**Vivekanand College, Kolhapur (Autonomous)**  
 Department of Computer Science Entire  
 Academic Year: 2022-2023  
**Annual Teaching Plan**

**Name of the teacher:** Miss. Nadiya Dara Patel

**Programme:** B.Sc. Computer Science Entire(B.C.S)

**Semester-VI**

**Subject:** Computer Science **Course Title:** Introduction to Artificial Intelligence and Expert Systems

Month- Jan 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	1.Introduction to Artificial Intelligence  Practical: 1) Linux operating system practical's	1) Definition of Artificial Intelligence, History of Artificial Intelligence, Goals of A.I.Contributors of A. I., Branches of A.I., Applications of A.I. Why Artificial Intelligence, Advantages of A.I., Disadvantages of A.I., Types of Artificial Intelligence: Type1, Type2.  2) Linux commands implementation
16	04	20		
Month- Feb 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	2.Introduction to Intelligent System  Practical: 2) Linux operating system practicals	1) What is intelligence, Types of Intelligence,Components of Intelligence- Reasoning, Learning, Problem Solving, Perception, Linguistic Intelligence. A.I. Agents and environment – concept, definition of agent, definition of environment, Structure of A.I intelligent agent, Rules for A.I agent, Rational Agent- PEAS representation (Case study of Self Driving Car) examples. Turing test.  2) Linux commands implementation
16	04	20		
Month- March 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	3.Problem Solving in A.I.  Practical: 3) Linux operating system practical's	Concept, Search algorithm terminologies: i) Search- Search Space, Start State, Goal State. ii) Search Tree, iii) Actions, iv) Transition Model, v) Path Cost vi) Solution vii) Optimal Solution, viii) Problem and Problem Space. Types of Search Algorithms: Uninformed- Breadth First Search, Depth First Search, Informed: Heuristic Search – i) Generate and test method , ii) Hill Climbing Natural Language Processing: concept, definition, natural language processing and understanding, NLP analysis stages 2) Linux commands implementation
16	04	20		
Month- April 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	4.Introduction to Expert System  Practical: 4) Linux operating system practical's	What are expert systems, Features of expert Systems, Components of Expert System- i) Knowledge base- definition, components of Knowledge base, Knowledge representation , Knowledge Acquisition. ii)Inference Engine – Definition, forward chaining, backward chaining, iii) User Interface Development of E.S., Limitations of E.S., Applications of E.S. 2) Linux commands implementation
16	04	20		

Name and Signature of Teacher  
 Miss. Nadiya Dara Patel



Name and Signature of HOD  
 Head  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.

# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2022-2023

## Annual Teaching Plan

Name of the teacher: Miss Shruti S.Patil

Programme BSc Entire (BCS)

Semester-III

Subject: computer science

Course Title: Introduction To RDBMS using MySQL

Month –August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to RDBMS	<ul style="list-style-type: none"> <li>•What is data and database</li> <li>•Concept of Database Management System</li> <li>• Concept of RDBMS, RDBMS Terminology</li> <li>• Who is DBA and responsibilities of DBA</li> <li>• Relational Model: Structure of Relational Databases, Relational algebra</li> <li>• Data Flow Diagram: Concept of DFD, Symbols, Levels of DFD's, example</li> </ul>
16	08	24		
Month –September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to Data Models and Normalization	<ul style="list-style-type: none"> <li>•Entity Relationship Diagram: Concept of Entity, Attributes, Symbols, Type of relations, examples</li> <li>• Normalization: Forms of Normalization- 1NF,2NF,3NF,BCNF</li> </ul>
16	08	24		
Month –October			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to MySQL	<ul style="list-style-type: none"> <li>•What is MySQL, features of MySQL</li> <li>•Basic Data Type in MySQL</li> <li>•Classification of Commands- DDL, DML, DCL, TCL</li> <li>•Data Constraints-Primary key, Foreign key, Unique, NOT NULL, Check, Default</li> <li>• Select statement with-where, group by, order by clause</li> <li>• SQL operators: Logical, Relational/Comparison, Special – In, Between, Like</li> <li>•SQL functions: Arithmetic, Date and Time, Aggregate functions</li> </ul>
16	08	24		
Month –November			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	MySQL Sub-Queries and Joins	<ul style="list-style-type: none"> <li>•Introduction to Sub Queries: Sub queries, Nested Sub query</li> <li>•Introduction to Joins: Simple/Inner two table join, Left, Right ,Outer, Self Join</li> <li>•Views, Indexes, Sequences</li> <li>•Introduction to Cursors and trigger</li> </ul>
16	08	24		

*Patil*

Name and Signature of Teacher  
Miss Shruti S.Patil

*Patil*

Name and Signature of HoD  
**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

Note: In the above format, for each month for each teacher.





# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2022-2023

## Annual Teaching Plan

Name of the teacher: Miss Shruti S. Patil

Programme : B.Sc. Computer Science Entire (BCS) Semester-IV

Subject: computer science

Course Title: Cyber Security

Month - January			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to Computer Network	<ul style="list-style-type: none"> <li>• Computer Network: Definition, Types of Network</li> <li>• Topologies, Network devices</li> <li>• Internet, Search Engines, Web Browsers</li> <li>• OSI Model, TCP IP Model</li> <li>• IP address scheme,</li> <li>• switching techniques.</li> </ul>
16	08	24		
Month - February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to Cyber security	<ul style="list-style-type: none"> <li>• Introduction to Cyber Security: Definition, Importance</li> <li>• Computer ethics, Hacker, Hacking phases, Hacker classes</li> <li>• Mobile Device Security, File Security, Password Security, Browser Security, Email Security, • Encryption, Decryption, • Digital Signature, spoofing.</li> </ul>
16	08	24		
Month - March			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to information security and threats	<ul style="list-style-type: none"> <li>• Security Threats: Definition</li> <li>• Types of Threats Web application threats, • Torrent and infected websites</li> <li>• Firewall, types of firewall</li> <li>Antivirus-Definition, Types, features, advantages, limitations, • difference between Firewall and Antivirus. • Definition of attack, Types of Attacks</li> <li>• What is cyber crime? and types of crime.</li> </ul>
16	08	24		
Month - April			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Access Control and cyber security laws	<ul style="list-style-type: none"> <li>• Computer Forensics, Steganography, elements of information security</li> <li>• Introduction to Kali Linux</li> <li>• Access Controls</li> <li>• Overview of Intrusion Detection Systems and Intrusion Prevention Systems.</li> <li>• Wireless Network Security- Concept and its security.</li> <li>• Cyber Security Laws</li> </ul>
16	08	24		

Name and Signature of Teacher  
Miss Shruti S. Patil

Name and Signature of HoD  
Head

Note: In the above format, for each month for each teacher.

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.





# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2022-2023

## Annual Teaching Plan

Name of the teacher: Miss Shruti S.Patil

Programme BSc Entire (BCS)

Semester-I

Subject: computer science

Course Title: Fundamental of computers

Month –August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Fundamental Of Computers	<ul style="list-style-type: none"> <li>•Demonstration of peripherals</li> <li>•Linking of various peripherals</li> <li>• Operation of all keys of keyboard</li> <li>•DOS – external and internal commands, batch files commands</li> </ul>
00	12	12		
Month –September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: Windows Operating System and Ms Word	<ul style="list-style-type: none"> <li>•Windows Operating System – Windows explorer, program manager, control panel, print manager, Creating folders, files, icons, shortcuts</li> <li>• MS – WORD – Creating new documents, typing, deleting, selecting text, undo, Redo, formatting text – page setup, headers and footers Writer's tools – spelling checker, auto format, auto correct, find and replace</li> <li>•Mail merge – Data source, Main document, creating mail merge document.</li> </ul>
00	12	12		
Month –October			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: MS – EXCEL and MS ACCESS	<ul style="list-style-type: none"> <li>•MS – EXCEL - Creating worksheet, Graphs, resizing graphs, formulas, if statement, types of functions</li> <li>•MS ACCESS - Creating data bases, writing queries</li> </ul>
00	12	12		
Month –November			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: C Programs	<ul style="list-style-type: none"> <li>•Program to print biodata.</li> <li>•program to perform all arithmetic operations</li> <li>• program to check whether given number is even or odd.</li> <li>• program to find largest among three numbers.</li> </ul>
00	12	12		

Name and Signature of Teacher

Miss Shruti S.Patil

Note: In the above format, for each month for each teacher.

Name and Signature of HoD

Head

Dept. of B.Sc. Comp. Sci. (Entire)

Vivekanand College, Kolhapur.



# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire  
Academic Year: 2022-2023

## Annual Teaching Plan

Name of the teacher: Miss Shruti S.Patil

Programme : B.Sc. Computer Science Entire(BCS ) Semester-II

Subject: computer science

Course Title: C programing

Month -January			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: C Program	
00	12	12		<ul style="list-style-type: none"> <li>• program to display Fibonacci series.</li> <li>• program to find Factorial of Given Number.</li> <li>• program to reverse the given number.</li> <li>• program to find prime number.</li> <li>• program to demonstrate switch statement.</li> </ul>
Month -February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: C Program	
00	12	12		<ul style="list-style-type: none"> <li>• program to calculate sum and average of given n numbers using array</li> <li>• program to calculate Matrix Addition, Multiplication</li> </ul>
Month -march			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: HTML Program	
00	12	12		<ul style="list-style-type: none"> <li>•programs on basic tags</li> <li>• programs on order and unordered list</li> <li>•programs on table tags</li> </ul>
Month -april			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Practical: HTML Program	
00	12	12		<ul style="list-style-type: none"> <li>•programs on image tag</li> <li>•programs on hyperlink</li> <li>•programs on frame tag</li> <li>And form tag</li> </ul>

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Name and Signature of Teacher

Miss Shruti S.Patil

*Patil*

Name and Signature of HoD  
**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

Note: In the above format, for each month for each teacher.



Name of the teacher: Mr. N. P. Mote  
 Programme: B.Sc. Computer Science Entire Part-I  
 Subject: Electronics


Semester- I  
 Course Title: Analog Electronics-I

Month : August 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
24	48	72	<b>UNIT 1: Basic Circuit Elements</b>	<p><i>Resistors:</i> Classification, colour code, specifications of resistors, etc.  <i>Capacitors:</i> Definition, Capacitance, classification of capacitors, <i>Inductors:</i> - Definition, symbol, Inductance, Inductive reactance (XL), Types of Inductors:  <i>Transformers:</i>-Principle and construction of transformer, Types of Transformer: - <i>Switches:</i> Explanation using Symbols. <i>Relay:</i> - Principle, construction and working of electromagnetic relay, etc.</p>
			<p>Practicals: GROUP A :</p> <ol style="list-style-type: none"> <li>1. Study of Electronic Components</li> <li>2. Study of CRO</li> <li>3. Study of P-N junction diode characteristics</li> <li>4. Study of full wave rectifier with &amp; without filter</li> </ol>	
Month: September 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
24	48	72	<b>UNIT 2: Semiconductor Diodes</b>	<p>Formation of PN junction, Depletion layer, Barrier potential, Working and I-V characteristics of PN junction diode. Diode applications, Zener diode: Breakdown mechanism, Photodiode and LED. Current limiting resistor for LED, Applications- Optocoupler, 7-segment display.</p>
			<p>Practicals:                      GROUP B:</p> <ol style="list-style-type: none"> <li>1. Study of Basic gates.</li> <li>2. Universal building block using NAND and NOR gates.</li> <li>3. Verification of De-Morgan's Theorems.</li> <li>4. Study of Half &amp; full adder.</li> </ol>	
Month : October 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		





24	48	72	<b>UNIT 3: Bipolar Junction Transistor</b>  Practicals: GROUP A : 5. Study of Transistor characteristics (CE) configuration. 6. Study of Transistors as switch 7. Study of Op Amp as inverting and Non-inverting Amplifier. 8. Study of Op Amp as adder and subtractor.	Structure and working of bipolar junction transistor: CB, CC, CE configurations, CE mode characteristics, Relation between $\alpha$ and $\beta$ , DC load line and Q point, potential divider Biasing, Concept of transistor as an amplifier and transistor as a switch..
Month : November 2022			Module/Unit:	Sub-units planned
24	48	72	<b>UNIT 4: Amplifiers:</b>  Practicals: GROUP B: 5. Study of Half & full subtractor. 6. Study of Flip Flops: 7. Study of Multiplexer and De-Multiplexer. 8. Study of 3 bit asynchronous Counter	Need of transistor Biasing, Transistor biasing and Stabilization circuits- Fixed Bias and Voltage Divider Bias. Class A, B, AB and C Amplifiers (Comparative Study on the basis of Q point), Single stage CE amplifier: Current gain, Voltage gain, Power gain, <b>Cascaded Amplifiers:</b> Two stage RC, LC, TC and DC Coupled Amplifiers and their Frequency Responses.

  
 Mr. N. P. Mote



  
 Miss P. M. Dessai  
**Head**  
 Dept. of B.Sc. Comp. Sci. (Entire)  
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# Vivekanand College, Kolhapur (Autonomous)

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Department of B.Sc. Computer Science Entire

Academic Year: 2022-23

## Teaching Plan

Name of the teacher: Mr. N. P. Mote  
 Programme: B.Sc. Computer Science Entire Part-I  
 Subject: Electronics

Semester- II  
 Course Title: Instrumentation

Month : January 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	<b>UNIT1: Bipolar Junction Transistor</b>	Structure and working of bipolar junction transistor: CB, CC, CE configurations, CE mode characteristics, Relation between $\alpha$ and $\beta$ , DC load line and Q point, potential divider Biasing, Concept of transistor as an amplifier and transistor as a switch.
16	80	96		
			Practicals: GROUP A :	
			9. Study of Instrumentation Amplifier.	
			10. Study of LVDT.	
			11. Study of ON OFF controller using LM 35 temp. Sensor	
			12. Study of Porch light control using LDR	
Month: February 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	<b>UNIT 2: Field Effect Transistor</b>	Comparison between BJT and FET, classification of FETs, Structure and working of JFET, I-V characteristics and parameters (transconductance, drain resistance, amplification factor) concept of MOSFET- depletion and Enhancement (structure and working only).
16	80	96		
			Practicals: GROUP B:	
			9. Study of Decimal to BCD Encoder.	
			10. Study of BCD to Seven segment Deboder	
			11. Arithmetic Operation using uP8085 - I.	
			12. Arithmetic Operation using uP8085 - II.	
Month : March 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		Photodiode and LED, Current limiting resistor



16	80	96	<b>UNIT 3: Amplifiers and Oscillators</b>  Practicals: GROUP A : 13. Study of 3 bit parallel/flash ADC 14. Study of R to 2R Ladder DAC 15. Study of Diode Matrix ROM	General classification of amplifiers, Idea of Multistage amplifier, different coupling methods (Direct coupling, RC coupling, Transformer coupling) Concept of positive and negative feedback. Barkhausen criteria; Types of oscillators RC phase shift, wein bridge, Hartley, Colpitts oscillator.
Month : April 2023			Module/Unit:	Sub-units planned
16	80	96	<b>UNIT 4: Operational Amplifier</b>  Practicals: GROUP B : 13. Block transfer using uP8085. 14. Block Exchange using uP8085	Concept of operational amplifier; ideal characteristics of Opamp; Different parameters of Op Amp, Virtual ground concept, Applications of Op-amp: Inverting amplifier, Non-inverting amplifier, Unity gain amplifier, Buffer, Adder, Subtractor, Integrator and Differentiator, Comparator, Schmitt Trigger.

Mr. N. P. Mote



Miss P. M. Dessai

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**Vivekanand College, Kolhapur (Autonomous)**  
 Department of Computer Science (Entire)  
 Academic Year: 2022-23

**Annual Teaching Plan**

Name of the teacher: **Dr. Milind S. Patil**

Programme: **B.Sc. Computer Science (Entire) II Semester- III**

Subject: Electronics Course Title: **GEC-1301 C Section- II Instrumentation And Computer Organization**

Month : August 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Computer organization:	Memory organization- Basic structure of computer system, Associative Memory, Cache memory, Cache mapping techniques: Direct, Associative, Set associative. Virtual memory, Virtual memory mapping (paging and segmentation).
16	48	64	Practicals: 1. Study of temperature sensor LM 35/AD 590 2. Instrumentation Amplifier using OP-AMP 3. 3 bit Flash ADC 4. R-2R ladder DAC	
Month: September 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	I / O organization:	I / O organization: Need of interface, Block diagram of general I/O interface, Working concepts like Polling, Daisy chain, Interrupt-initiated data transfer. Concept of DMA, DMA transfer, DMA Controller, Serial communication: UART, USB.
16	48	64	Practicals: 5. Filters (low pass and high pass) 6. Study of pre-amplifier (Inverting and Non-inverting Amplifiers). 7. Study of LVDT 8. Study of PIR sensor	
Month : October 2022			Module/Unit:	Sub-units planned



16	48	64	CPU Organization:	CPU Organization: Register based CPU organization, stack organization: concept of PUSH, POP, Top of Stack and Stack pointer, Ascending and Descending stack, Register stack, Memory stack.
			Practicals: 9. Automatic porch light control using LDR 10. Study of Motherboard 11. Wired communication-n using RS-232 by Terminal software	
Month : November 2022			Module/Unit:	Sub-units planned
16	48	64	Introduction to 8086 microprocessor:	Introduction to 8086 microprocessor: Evolution of Microprocessor (8086 to Pentium 4), Concept of RISC & CISC, Von-Neumann & Harvard Architecture, 8086 Architecture, Concept of pipeline.
			Practicals: 12. Study of Read write action of RAM 13. Study of Diode matrix ROM 14. Study of Arithmetic and Logic Unit (ALU)	

*Milind*

Dr. Milind S. Patil



*Desai*

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**Annual Teaching Plan**

Name of the teacher: **Dr. Milind S. Patil**

Programme: **B.Sc. Computer Science (Entire) II Semester- IV**

Subject: Electronics Course Title: **GEC-1301 D Section- II 8051 Programming,**

**Interfacing and Raspberry Pi**

Month : January 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Raspberry Pi	Introduction to Single board computer: Basics of Single board computer, Introduction to ARM Cortex Processor, Raspberry Pi Series and Model, Comparison of various models of Raspberry Pi, Detailed specifications of Raspberry Pi 3B+: CPU, Storage devices, GPIO, Ethernet, Wi-Fi, Bluetooth, Power supply, Ports: USB, Display, Camera etc.
16	48	64	Introduction to Single board computer:	
			Practicals: 1. Study of temperature sensor LM 35/AD 590 2. Instrumentation Amplifier using OP-AMP 3.3-bit Flash ADC 4.R-2R ladder DAC	
Month: February 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Architecture of Raspberry Pi-3B+,4:	Architecture of Raspberry Pi-3B+,4: Block diagram of Raspberry Pi-3B+, 4, Functions of each block, features of Broadcom processor, Pin Description, CPU Architecture: Pipeline stages, Cache Organization, Concept of branch Prediction & Folding, GPU Overview.
16	48	64		
			Practicals: 5.Filters (low pass and high pass) 6.Study of pre-amplifier (Inverting and Non-inverting Amplifiers).	





Month : March 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Programming of Raspberry Pi using Python:	Programming of Raspberry Pi using Python: Benefits of Operating system, different types of OS, Overview of Raspbian OS, OS Installation, Configuration of Raspberry Pi, Installation of libraries, Basic Python Programming (Script programming), Functions: I/O function (GPIO, Digital), Time functions (Delays), Library functions Basic Arithmetic Programs.
16	48	64	Practicals: 9.Study the interfacing of Relay and LED using microcontroller 10.Study the interfacing Stepper motor with 8051 11.Study waveform generator (square, triangular and saw tooth using DAC) with uC	
Month : April 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Interfacing & Python Programming:	Interfacing & Python Programming: Basic: LED and Switch, LCD, Relay and Buzzer Advanced: Internal: Bluetooth, Wi-Fi, Ethernet, I2C, SPI External: Camera interfacing, Serial Communication, GSM, Ultrasonic Sensor, PIR, Fingerprint reader.
16	48	64	Practicals: 12.Study of interfacing of 16 x 2 LCD. 13.Study the interfacing of ADC IC0804 14.Study the interfacing of DC motor.	

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*P. Desai*  
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# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science (Entire)

Academic Year: 2022-23

## Annual Teaching Plan

Name of the teacher: **Dr. Milind S. Patil**

Programme: **B. Sc. Computer science (Entire) Part-I SEMESTER-I**

Subject: **Electronics** Course Title: **GEC-1301A2 Section-II Digital Electronics-I**

Month : August 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
8	32	40	Lecture: Unit 1: Number System, Binary Codes and Binary Arithmetic Practical's: 1. Study of Electronic Components 2. Study of CRO 3. Study of P-N junction diode characteristics 4. Study of full wave rectifier with & without filter	Decimal, Binary, Octal and Hexadecimal number systems and their inter conversions. BCD code, ASCII code, Gray Code, Excess-3 Code, Binary Arithmetic: Addition, Subtraction by 1's complement and 2's complement method
Month: September 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
8	32	40	Lectures : Unit 2: Logic Gates, Boolean algebra: Practicals: 1. Study of Transistor characteristics (CE) configuration. 2. Study of Transistors as switch 3. Study of Op Amp as inverting and Non-inverting Amplifier. 4. Study of Op Amp as adder and Subtractor.	Study of logic Gates: OR, AND, NOT, NOR, NAND, XOR, XNOR, Universal Gates, Boolean identities and Law's. Theorems of Boolean algebra. Standard representation of logic functions, Binary Addition, Half and Full Adder. Half and Full Subtractor, 4-bit binary Adder/Subtractor.
Month : October 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
8	32	40	Lecture: Unit 3: Combinational circuits: Practicals: 1. Study of Instrumentation Amplifier. 2. Study of LVDT. 3. Study of ON OFF controller using LM 35 temp. Sensor 4. Porch light control using LDR	Multiplexers: - 2 to 1, 4 to 1 and 8 to 1. Demultiplexer: - 1 to 2, 1 to 4, 1 to 8. Encoder: concept of encoder, Decimal to BCD Encoder. Basic Binary decoders: 2 to 4 line, 3 to 8 line and 4 to 16 line. BCD to decimal decoder, Study of BCD to seven-segment decoder driver IC 7447.
Month : November 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
8	32	40	Lecture: Unit 4: Sequential circuits: Practicals 1. Study of 3 bit parallel/flash ADC 2. Study of R to 2R Ladder DAC 3. Study of Diode Matrix ROM	Concept of sequential circuits, Flip-flops: RS, Clocked RS, D, JK, Master Slave JK, T-Flip-flop, Counters- Asynchronous (3-bit, 4-bit, Decade) Synchronous (3-bit, 4-bit) Ring Counter, Johnson counter, Shift Registers: SISO (left shift, right shift), SIPO, PISO, and PIPO Registers

*MSP*  
Dr. Milind S. Patil



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# Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science (Entire)

Academic Year: 2022-23

## Annual Teaching Plan

Name of the teacher: **Dr. Milind S. Patil**

Programme: **B. Sc. Computer science (Entire) Part-I SEMESTER-II**

Subject: Electronics Course Title: **GEC-1301B2 Section-II Digital Electronics-II**

Month: January 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Lecture: Unit 1: Memory devices and memory Organization Practical: 1. Study of Basic gates. 2. Universal building block using NAND and NOR gates. 3. Verification of De-Morgan's Theorems. 4. Study of Half & full adder	Types of Memory - RAM (SRAM and DRAM), ROM, PROM, EPROM, and EEPROM, Concept of Diode Matrix ROM, Memory org - building the required memory size by using available memory chips, memory address map.
8	32	40		
Month : February 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Lecture : Unit 2: Introduction to Microprocessor 1. Study of Half & full subtractor. 2. Study of Flip Flops: 3. Study of Multiplexer and De-Multiplexer. 4. Study of 3 bit asynchro Counter	Introduction to microprocessors (8, 16, 32 Bits). Pin Diagram and Architecture of 8085. Pin Diagram and Architecture of 8086.
8	32	40		
Month: March 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 3: Instruction Set of 8085 Microprocessor 1. Study of Decimal to BCD Encoder. 2. Study of BCD to Seven segment Decoder 3. Arithmetic Operation using uP8085 - I. 4. Arithmetic Operation using uP8085 - II.	Instruction format, Arithmetic group of Instructions, Logical Group of Instructions
8	32	40		
Month: April 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 3: Instruction Set of 8085 Microprocessor  Unit 4: Programming with 8085 Micro-processor Practical: 1. Block transfer using uP8085. 2. Block Exchange using uP8085.	Branch Control Instruction and machine related instruction Assembly Language Programs (ALP) for Addition, Subtraction, Multiplication, Division, Data transfer, Block Transfer
8	32	40		

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Dr. Milind S. Patil



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**Vivekanand College, Kolhapur (Autonomous)**  
**B. Sc. Computer science Entire**  
 Department of Electronics  
 Academic Year: 2022-23

**Annual Teaching Plan**

Name of the teacher: **Dr. P. S. Jadhav**

Programme: **B. Sc. Computer science Entire Part-I, Semester-I**

Subject: Electronics Course Title: **Digital Electronics-I**

Month : August 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
24	80	104	Lecture: Unit 1: Number System, Binary Codes and Binary Arithmetic Practical's: 1. Verification of Kirchhoff's Current Law (KCL) and Kirchhoff's Voltage Law (KVL) 2. Study of CRO 3. Verification of Thevenin's Theorem 4. Verification of Norton's Theorem	Decimal, Binary, Octal and Hexadecimal number systems and their inter conversions. BCD code, ASCII code, Excess 3 code, Gray code Binary Arithmetic: Addition, Subtraction by 1's complement and 2's complement method, Representation of signed and unsigned numbers
Month: September 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
24	80	104	Lectures : Unit 2: Logic Gates, Boolean algebra, Practical's: 1. Verification of Superposition Theorem 2. Study of the of P-N junction Diodes 3. Study of Full wave rectifier (centre tapped transformer /bridge) 4. Study of Transistor as switch Study of Op Amp as adder and Subtractor.	Study of logic Gates: OR, AND, NOT, NOR, NAND, XOR, XNOR, Universal Gates, Boolean identities and Law's. Fundamental theorems of Boolean algebra. Standard representation of logic functions (SOP and POS), Arithmetic Circuits:
Month : October 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total		
24	80	104	Lecture: Unit 3: Combinational circuits: Practical's: 1. Study of Op-Amp as adder and Subtractor. 2. Characteristics of FET 3. Study of Common Emitter (CE) configuration	Binary Addition. Half and Full Adder. Half and Full Subtractor, 4-bit binary Adder/Subtractor, Multiplexers: - 4 to 1 and 8 to 1. Demultiplexer: - 1 to 4, 1 to 8. Encoder: concept of encoder, Decimal to BCD Encoder. BCD to decimal decoder, Study of BCD to seven-segment decoder



				driver IC 7447.
Month : November 2022			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 4: Sequential circuits: Practicals	Concept of sequential circuits, Flip-flops: RS, Clocked RS, D, JK, Master Slave JK, T- Flip-flop.
24	80	104	<ol style="list-style-type: none"> <li>1. Study of 3 bit parallel/flash ADC</li> <li>2. Study of R to 2R Ladder DAC</li> <li>3. Study of Diode Matrix ROM</li> </ol>	Counters- Asynchronous (3-bit, bit, Decade) Synchronous (3-bit, - bit) Ring Counter, Johnson counter (Truth tables and timing diagrams) Concept of register, Left shift and Right Shift operations, Types of shift registers: SISO, SIPO, PISO & PIPO (only up to 4 bits).

*Jadhav*

Dr. P. S. Jadhav



*Desai*

Miss P. M. Desai

**Head**

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# Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2022-23

## Annual Teaching Plan

Name of the teacher: **Dr. P. S. Jadhav**

Programme: **B. Sc. Computer science Entire Part-I, Semester-II**

Subject: Electronics Course Title: **Digital Electronics-II**

Month: January 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Lecture: Unit 1: Multivibrators	Types of multivibrator, Block diagram of IC 555, Application of IC 555 as Astable and Monostable Multivibrator (Calculation of frequency and Pulse width.
24	80	104	Practicals: 1. Study of Basic gates. 2. Universal building block using NAND and NOR gates. 3. Verification of De-Morgan's Theorems.	
Month : February 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Lecture : Unit 2: Memory devices and memory Organization	Types of Memory – RAM (SRAM and DRAM), ROM, PROM, EPROM, and EEPROM, Concept of Diode Matrix ROM, Memory organization - building the required memory size by using available memory chips, memory address map.
24	80	104	Practicals: 1. Study of Half & full adder 2. Study of Half & full subtractor. 3. Study of Flip Flops: RS,D,JK	
Month: March 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 3: Introduction to Microprocessor	Introduction to microprocessors (8, 16, 32 Bits). Pin Diagram and Architecture of 8085. Pin Diagram and Architecture of 8086.
24	80	104	Practicals: 1. Study of Multiplexer and De-Multiplexer 2. Study of Astable Multivibrator circuit using IC 555. 3. Study of Monostable Multivibrator	
Month: April 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 3: Instruction Set of 8085 Microprocessor and Programming with	Instruction format, Arithmetic group of





24	80	104	8085 Micro-processor  Practicals: 1. Arithmetic Operation using uP8085 - I. 2. Arithmetic Operation using uP8085 - II.	Instructions, Logical Group of Instruction. Branch Control Instruction and machine related instruction Assembly Language Programs (ALP) for Addition, Subtraction, Multiplication, Division, Data transfer, Block Transfer
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*P. S. Jadhav*

Dr. P. S. Jadhav



*P. M. Desai*

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**Vivekanand College, Kolhapur (Autonomous)**

Department of B.Sc. Computer Science Entire

Academic Year: 2022-23

**Teaching Plan**

Name of the teacher: Mr. G. B. Jirage

Programme: B.Sc. Computer Science Entire Part-I

Subject: Electronics

Semester- I

Course Title: Analog Electronics

Month : Aug 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
0	80	80	Practicals: GROUP A : 1. Study of Electronic Components 2. Study of CRO 3. Study of P-N junction diode characteristics 4. Study of full wave rectifier with & without filter	
Month: Sept 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
0	80	80	GROUP A : 5. Study of Transistor characteristics (CE) configuration. 6. Study of Transistors as switch	
Month : October 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
0	80	80	GROUP A :  Practicals: 7. Study of Op Amp as inverting and Non-inverting Amplifier. 8. Study of Op Amp as adder and subtractor.	
Month : November 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
0	80	80	Practicals: GROUP B: 1. Study of Half & full subtractor. 2. Study of Flip Flops: 3. Study of Multiplexer and De-Multiplexer. 4. Study of 3 bit asynchronous Counter	


 Mr. G. B. Jirage


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**Vivekanand College, Kolhapur (Autonomous)**  
 Department of B.Sc. Computer Science Entire  
 Academic Year: 2022-23  
**Teaching Plan**

Name of the teacher: Mr. G. B. Jirage  
 Programme: B.Sc. Computer Science Entire Part-I  
 Subject: Electronics

Semester- II  
 Course Title: Instrumentation

Month : January 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Practicals: GROUP A : 9. Study of Instrumentation Amplifier. 10. Study of LVDT. 11. Study of ON OFF controller using LM 35 temp. Sensor 12. Study of Porch light control using LDR	
0	80	80		
Month: February 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Practicals: GROUP B: 5. Study of Decimal to BCD Encoder. 6. Study of BCD to Seven segment Decoder 7. Arithmetic Operation using uP8085 - I. 8. Arithmetic Operation using uP8085 .	
8	32	40		
Month : March 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Practicals: GROUP A : 13. Study of 3 bit parallel/flash ADC 14. Study of R to 2R Ladder DAC 15. Study of Diode Matrix ROM	
0	80	80		
Month : April 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Practicals: GROUP B : 9. Block transfer using uP8085. 10. Block Exchange using uP8085	
0	80	80		

  
 Mr. G. B. Jirage



  
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# Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2022-23

## Annual Teaching Plan

Name of the teacher: Mr. G. B. Jirage

Programme: B.Sc. Computer Science Entire Part-II

Semester- III

Subject: Electronics Course Title: Section-I Instrumentation

Month : August 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-1: Sensors and Transducers	Definition of sensors and transducers, Classification of sensors: Active and passive sensors. Specifications of sensor: (Accuracy, range, linearity, sensitivity, resolution, reproducibility). Temperature transducers: Resistance temperature detector (RTD), Thermistors, Thermocouple (LM-35 and AD590), Pressure transducers: Piezoelectric transducer, capacitive transducer, displacement transducer (LVDT), Optical transducers: (LDR), Passive Infrared sensor(PIR), touch sensor, ultrasonic sensor, Hall effect transducer.
16	48	64	Practicals: 1. Study of temperature sensor LM 35/AD 590 2. Instrumentation Amplifier using OP-AMP 3. 3 bit Flash ADC 4. R-2R ladder DAC	
Month: September 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-2: Signal Conditioning	Introduction to signal conditioning, Signal conditioning of passive sensors using bridge circuit: Wheatstone's bridge, Amplifiers: Introduction to Op-Amp Inverting and Non inverting amplifiers, Three Op-Amp instrumentation amplifier, Introduction to Op-Amp Attenuators, I to V converter, Sample and Hold circuit, Filters: Concept of Order of filters, active and passive filters:(Op-Amp based first order filters: Low Pass Filter, High Pass
16	48	64	Practicals: 5. Filters (low pass and high pass) 6. Study of pre-amplifier (Inverting and Non-inverting Amplifiers). 7. Study of LVDT 8. Study of PIR sensor	



				Filter, Band Pass Filter, Band reject filter).
			Unit 3: Data Converters	Digital to Analog Converter (DAC): Weighted Resistor, R-2R ladder, Parameters: (Linearity, resolution, accuracy), Analog to Digital Converter(ADC):Types of ADC: Parallel/Flash, Counter type, Successive approximation, Parameters of ADC (Linearity, resolution, conversion time, accuracy).
Month : October 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 4: Data Acquisition System and Digital Instruments	Introduction to Generalized Data Acquisition System (Single channel and multi-channel), Data Logger, Digital Instruments: Digital Multimeter, Digital Frequency Meter, Digital Tachometer, Digital pH Meter, Digital Phase Meter.
16	48	64	Practicals: 9. Automatic porch light control using LDR 10. Study of Motherboard 11. Wired communication-n using RS-232 by Terminal software	
Month : November 2022			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit 4: Data Acquisition System and Digital Instruments	Introduction to Generalized Data Acquisition System (Single channel and multi-channel), Data Logger, Digital Instruments: Digital Multimeter, Digital Frequency Meter, Digital Tachometer, Digital pH Meter, Digital Phase Meter.
16	48	64	Practicals: 12. Study of Read write action of RAM 13. Study of Diode matrix ROM 14. Study of Arithmetic and Logic Unit (ALU)	

  
Mr. G. B. Hirage



  
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Vivekanand College, Kolhapur.

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**Vivekanand College, Kolhapur (Autonomous)**

Department of Electronics

Academic Year: 2022-23

**Annual Teaching Plan**

Name of the teacher: Mr. G. B. Jirage

Programme B.Sc. Computer Science Entire Part-II, Semester-IV


Subject: 8051 Programming, Interfacing

Month: January 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Unit-1: Introduction to Microcontroller 8051	Comparison of Microcontroller & Microprocessor, Architecture of 8051, Internal RAM Structure, SFRS, Pin diagram of 8051, I/O ports structure, Reset and Clock, Registers, Introduction to different types of 8-bit microcontroller like PIC, AVR. Comparison between 8051, AVR, PIC. Applications of microcontroller.
16	48	64	Practicals: 1. Study of temperature sensor LM 35/AD 590 2. Instrumentation Amplifier using OP-AMP 3. 3-bit Flash ADC 4. R-2R ladder DAC	
Month : February 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit-2: 8051 Instruction Set	Study of 8051 Instruction Set and Addressing Modes, Data transfer, Arithmetic, Logical, Branch and Bit manipulation Instructions, Assemble language programming: Arithmetic and logical.
16	48	64	Practicals: 5. Filters (low pass and high pass) 6. Study of pre-amplifier (Inverting and Non-inverting Amplifiers). 7. Study of LVDT 8. Study of PIR sensor	
Month: March 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit-3: Facilities in 8051	Timer and Counter; Timer and






16	48	64		Counters, Timer modes, Programming the timers in different modes using assembly / C for time delay generation. <i>Serial Port:</i> Serial port of 8051, RS-232 standard and IC MAX-232, Baud rate in 8051, Programming for transmitting/receiving character through serial port using assembly / C. <i>Introduction to Interrupt:</i> Interrupt types and their vector addresses. Interrupt enable register and interrupt priority register (IE, IP).
Month: April 2023			Module/Unit:	Sub-units planned
16	48	64	Unit-4: Real World Interfacing	Programming through embedded C: Interfacing with LED, Liquid Crystal Display (LCD), Analog to Digital Converter (ADC), Digital to Analog Converter (DAC), Stepper Motor and DC motor.
			Practicals: 12. Study of interfacing of 16 x 2 LCD. 13. Study the interfacing of ADC IC0804 14. Study the interfacing of DC motor.	

  
Mr. G. B. Jadge



  
Miss. P. M. Desai  
**Head**

Dept. of B.Sc. Comp. Sci. (Entire);  
Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of Teacher: Ms. Snehal Sarjerao Patil

Program: B.Sc. Computer Science (Entire)-II

Semester: I

Subject: Mathematics

Course Title: Practicals

Month: August			Module/Unit	Subunits Planed
Lectures	Practical	Total	Discrete Mathematics	1. Recurrence relation 2. Combinational Arguments
00	68	68		
Month: September			Module/Unit	Subunits Planed
Lectures	Practical	Total	Discrete Mathematics	5. Euclid's algorithm, division algorithm 6. Fermat's theorem on remainder
00	68	68		
Month: October			Module/Unit	Subunits Planed
Lectures	Practical	Total	Algebra	7. Warshall's algorithm 8. Sorting methods
00	68	68		
Month: November			Module/Unit	Subunits Planed
Lectures	Practical	Total	Algebra	9. Finite state machine, input tape, output tape 10. Proofs of valid arguments using laws of inference
00	68	68		



Ms. Snehal sarjerao Patil

(Name and Signature of Teacher)





(P.M. Dessai)

Head

Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**

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

**Academic Year: 2022-2023**

**Annual Teaching Plan**

Name of the teacher: Ms. Snehal Sarjerao Patil  
 Programme -B.Sc. Computer Science (Entire) -II  
 Subject: Mathematics  
 Algebra

Semester - III  
 Course Title: Linear

Month : August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1.Linear Equation and Matrices and Practical	1 Matrices 2 Submatrices, Minors of matrix, Rank of matrix 3 Linear systems 4 Results on system of linear equations and invertible matrices (Statements only) 5 Solutions of Systems of Linear Equations Gaussian Elimination method Gauss-Jordan method LU Factorization method
16	20	36		
Month: September			Module/Unit: II,III	Sub-units planned
Lectures	Practicals	Total	2.Eigen values, Eigen Vectors and Diagonalization	1.Eigen values and Eigen vectors 2.Diagonalization 3.Cayley Hamilton theorem (Statement only) examples
16	20	36		
			3.Real Vector spaces and Practical	1.Ring, Integral Domain, Field (only Definition) 2. Vector Spaces 3.Subspaces





Month : October			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3.Real Vector spaces and Practical	4.Linear Dependant and Independent (definition and Examples)  5.Basis and Dimension  6 Rank and Nullity of a matrix  7 Inner product space  Definition and examples  Properties of inner product  Orthonormal Basis in R  Gram-Schmidt process
16	20	36		
Month : November			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4.Linear Transformations and Matrices and Practical	1.Definitions and examples  2 The Kernel and Range of a linear transformation  3 The Matrix of a linear transformation
16	20	36		

*S.S.Patil*

Ms. Snehal Sarjerao Patil

Name and Signature of Teacher



*P.M.Dessai*

(Prof. P.M.Dessai)

**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

Department of mathematics

Academic Year: 2022-2023

Annual Teaching Plan

Name of the teacher: Ms. Snehal Sarjerao Patil

Programme -B.Sc. Computer Science (Entire)-I  
Subject: Mathematics

Semester - II

Course Title: Graph Theory

Month: January			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	Graphs & operations on graphs and practicals	1. Definition and elementary results 2. Types of graphs Isomorphism 3. Matrix representation of graphs : Adjacency matrix and incidence matrix Subgraphs and induced graphs 4. Complement of a graph, Self complementary graphs
24	44	68		
Month: February			Module/Unit: I and II	Sub-units planned
Lectures	Practicals	Total	Graphs & operations on graphs and practicals	5. Union, intersection of graphs, Ring sum of two graphse
24	44	68	Connected Graphs and practicals	1. Definitions : walk, trail, tour, path and circuit 2. Definitions of connected, disconnected graphs 3. Dijkstra's shortest path algorithm 4. Connectivity : Isthumus, cut-vertex, vertex connectivity and edge connectivity



Month : March			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Tree Graphs and practicals	1 Tree : Definition 3.1 Theorem : A tree with $n$ vertices has $n-1$ edges 3.2 Theorem : A connected graph $G$ with $n$ vertices and $n-1$ edges is a tree 3.3 Theorem : A graph with $n$ vertices is a tree if and only if it is circuit free and has $n-1$ edges 3.4 Theorem : A graph $G$ is a tree if and only if it is minimally connected 2 Center of a tree 3 Spanning tree : Definition and examples
24	44	68		
Month : April			Module/Unit: III and IV	Sub-units planned
Lectures	Practicals	Total	Tree Graphs	4.Fundamental circuit and cut – set : Definition 5 Binary trees and elementary results 6 Kruskal's algorithm
24	44	68	Directed Graphs and practicals	1.Definition, types of directed graphs, vertices 2 Isomorphism of digraphs 3 Connectedness in digraphs 4 Euler digraph 5 Network and flows : Definition, examples 6 Maximal flow algorithm 7 Ford Fulkerson's Maximal flow network algorithm, : Examples

*S.S.Patil*

MS. Snehal Sarjerao Patil  
Name and Signature of Teacher



*P.M.Dessai*

(Prof. P.M.Dessai)

**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.



**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of the teacher: Ms. Snehal Sarjerao Patil

Programme – B.Sc. Computer science (Entire)-II

Semester-IV

Subject: Mathematics

Course Title: Computational geometry


Month: January			Module/Unit	Subunits Planned
Lectures	Practical	Total		
16	20	36	1.Two dimensional transformations and Practicals	1.Introduction. 2.Representation of points. 3. Transformations and matrices. 4. Transformation of points. 5. Transformation of straight Lines. 6. Midpoint transformation. 7. Transformation of parallel lines. 8. Transformation of intersecting lines. 9. Transformation: rotations, reflections, scaling, shearing. 10. Combined transformations. 11. Transformation of a unit square. 12. Solid body transformations. 13. Transformation and homogeneous coordinates. Translation. 14. Rotation about an arbitrary point. 15. Reflection through an arbitrary line. 16. Projection – a geometric interpretation of homogeneous co-ordinates. 17 Overall Scaling. 18 Point at infinity.



Month: February			Module/Unit	Subunits Planned
Lectures	Practical	Total	2.Three dimensional transformations and Practicals	1.Introduction. 2 Three dimensional – Scaling, shearing, rotation, reflection, translation. 3.Multiple transformations. 4.Rotation about – an axis parallel to coordinate axes, an arbitrary axis in space. 5. Reflection through – coordinate planes, planes parallel to coordinate planes, arbitrary planes. 6. Affine and perspective transformations. 7. Orthographic projections. 8. Axonometric projections. 9. Oblique projections.
16	20	36		
Month: March			Module/Unit	Subunits Planned
Lectures	Practical	Total	3.Plane Curves and Practicals	1.Introduction. 2. Curve representation. 3. Non-parametric curves. 4. Parametric curves. 5. Parametric representation of a circle and generation of circle. 6. Parametric representation of an ellipse and generation of ellipse. 8. Parametric representation of a parabola and generation of parabolic segment. 9. Parametric representation of a hyperbola and generation of hyperbolic
16	20	36		
Month: April			Module/Unit	Subunits Planned
Lectures	Practical	Total	4.Space curves and Practicals	1 Bezier Curves – Introduction, Definition, Properties (without proof) 2. Curve fitting (upto $n = 3$ ) 3. Equation of the curve in matrix form (upto $n = 3$ )
16	20	36		

  
 Ms Snehaj Sarjerao patil  
 Name and Signature of Teacher



  
 (Prof. P.M. Dessai)  
**Head**  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kothapur.

**Vivekanand College, Kolhapur (Autonomous)****B.Sc. Computer Science (Entire)****Academic Year: 2022-2023****Annual Teaching Plan**

Name of the teacher: Ms. Namrata Suhas Tamgave

Programme – B.Sc Computer Science ( Entire)-I

Subject: Mathematics

Semester - I

Course Title: Algebra

Month: August			Module/Unit :I	Subunits Planned
Lectures	Practical	Total	Relations and practicals	1.Functions : Definition, Types of mapping, Injective, Surjective&Bijecive functions, 2.Inverse function, Composition of functions  Ordered pairs, Cartesian product  3.Relations, Types of relations, Equivalence relation, Partial ordering  4.Other types of relation : Irreflexive, Assymmetric  5.Digraphs of relations, matrix representation & composition of relations  6.Transitive closure, Warshall's algorithm  Equivalence class, Partition of a set
24	40	64		
Month: September			Module/Unit :II	Subunits Planned
Lectures	Practical	Total	Divisibility of integers and practicals	1.Introduction 2 Divisibility : Division algorithm (Statement only) 3 Greatest Common Divisor (g.c.d), Least Common Multiple (l.c.m.) 4 Euclidean algorithm (Statement only), divisibility Test 1)by 10 (i.e. by 2 & 5) 2)by 11 5 Prime numbers, Euclide's lemma, Fundamental theorem of Arithmetic (without proof) 6 Congruence relation & its properties 7 Fermat's theorem (Statement only), examples 8 Residue classes : definition, examples, addition modulo n, multiplication modulo n
24	40	64		





Month: October			Module/Unit :III	Subunits Planed
Lectures	Practical	Total	Boolean Algebra and practicals	1. POSET : definition 2 Hasse diagram 3 Lattice: definition, principle of duality 4 Basic properties of algebraic systems defined by Lattice 5 Distributive & complemented lattice 6 Boolean Lattice & Boolean algebra 7 Boolean expression & Boolean functions 8 Disjunctive & Conjunctive normal forms & examples 9 Finite state machines
24	40	64		
Month: November			Module/Unit :IV	Subunits Planed
Lectures	Practical	Total	Introduction to group theory and practicals	1. Binary operation : definition 2. Semi group & Monoids : definition & examples 3. Group : definition & examples, simple properties of groups 4 Sub-group : definition & examples
24	40	64		

*Tamgave*

Ms. Namrata Suhas Tamgave  
Name and Signature of Teacher



*Dessai*

(Prof. P. M. Dessai)  
**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of Teacher: Tamgave Namrata Suhas

Program: B.Sc. Computer Science (Entire)-II

Subject: Mathematics

Semester: III

Course Title: Numerical Methods

Month: August			Module/Unit I	Subunits Planed
Lectures	Practical	Total	1. Solution of Non-linear Equations and Practicals	1 Introduction 2 Bisection method: Algorithm and examples 3 Regula-Falsi method: Algorithm, graphical representation and examples 4 Newton-Raphson method: Algorithm, graphical representation and examples 5 Secant method: Algorithm and examples
16	20	36		
Month: September			Module/Unit II	Subunits Planed
Lectures	Practical	Total	2. Numerical Interpolation and Practicals	1 Interpolation, Equally and Unequally spaced data 2 Definitions of forward difference ( $\Delta$ ), Backward difference ( $\nabla$ ) and Shift operator ( $E$ ) 3 Elementary results on $\Delta, \nabla, E$ 4 Newton-Gregory Forward interpolation formula (with proof) and examples 5 Newton-Gregory Backward interpolation formula (with proof) and examples 6 Lagrange's interpolation formula (with proof) and examples 7 Newton's divided difference formula (with proof) and examples
16	20	36		



Month: October			Module/Unit III	Subunits Planed
Lectures	Practical	Total		
16	20	36	3. Numerical Integration and Practicals	1 Introduction of numerical integration 2 General Quadrature formula (with proof) 3 Trapezoidal rule (with proof) and examples 4 Simpson's $\frac{1}{3}$ rd rule (with proof) and examples 5 Simpson's $\frac{2}{8}$ th rule (with proof) and examples
Month: November				
Lectures	Practical	Total	Module/Unit IV	Subunits Planed
16	20	36	4. Solution of first order ordinary differential equation and Practicals	1. Introduction of first order ordinary differential equation 2 Euler's method and examples 3 Euler's modified method and examples 4 Runge-Kutta method (second and fourth order) and examples

*Tamgave*

Tamgave Namrata Suhas

(Name and Signature of Teacher)



*P.M. Dessai*

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Head

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur,



**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of Teacher: Ms. Namrata Suhas Tamgave

Program: B.Sc. Computer Science (Entire)-II

Subject: Mathematics

Semester: II

Course Title: Practicals

Month: January			Module/Unit	Subunits Planed
Lectures	Practical	Total	Graph Theory	1.Kruskal's algorithm 2.Dijkstra's shortest path algorithm
00	72	72		
Month: Febeuary			Module/Unit	Subunits Planed
Lectures	Practical	Total	Graph Theory	3.Fundamental circuits &cutsets 4.Ford Fulkerson's maximal flow network
00	72	72		
Month: March			Module/Unit	Subunits Planed
Lectures	Practical	Total	Calculus	5.Rolle's theorem 6.Lagrange's mean value theorem 7.Cauchy's mean value theorem
00	72	72		
Month: April			Module/Unit	Subunits Planed
Lectures	Practical	Total	Calculus	8. Series expansion of $e^x, \sin \sin x, \cos \cos x, \log \log(1+x)$ 9.L'Hospital's Rule 10.Leibnitz's Rule
00	72	72		

*Tamgave*

Ms. Namrata Suhas Tamgave  
Name and Signature of Teacher



*Dessai*

(Prof.P.M.Dessai)

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of Teacher: Tamgave Namrata Suhas

Program: B.Sc Computer Science(Entire)-II

Subject: Mathematics

Semester: IV

Course Title: Operations Research

Month: January			Module/Unit: I,II	Sub-units planned
Lectures	Practicals	Total	1. Introduction to Operations Research	1 Basics of operations research 2 Different definitions of operations research 3 Characteristics, scope, limitations of operations research
16	20	36	2 Linear Programming Problem	1 Basics definitions 2 Solution of L.P.P by Simplex method and examples 4 Solution of L.P.P by Big - M method and examples
Month February			Module/Unit: II,III	Sub-units planned
Lectures	Practicals	Total	2 Linear Programming Problem	4. Definition of Dual Problem 5. Relationship between solutions of primal and dual problems
16	20	36	3. Transportation and Assignment problem	1 Basics of Transportation problem 2 Basic Definitions 3 Initial Solution 3.1 North - West corner method and examples 3.2 Matrix minima method and examples 3.3 Vogel's approximation method and examples



Month : March			Module/Unit III	Sub-units planned
Lectures	Practicals	Total	3 Transportation and Assignment problem	
16	20	36		4 MODI method and examples 5 Maximization in transportation problem and examples 6 Unbalanced transportation problem and examples 7 Introduction to Assignment problem 8 Hungarian method and examples 9 Maximization in Assignment problems and examples 10 Unbalanced Assignment problem and examples 11 Assignment problems with restrictions and examples
Month : April			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4 Theory of Games	
16	20	36		1 Basics definitions 2 Saddle point and examples 3 Algebraic method for $2 \times 2$ size game and examples 4 Arithmetic method for $2 \times 2$ size game and examples 5 Principal of dominance, Dominance method and examples 6 Sub-game method for $2 \times n$ & $m \times 2$ size game and examples 7 Graphical method for $2 \times n$ & $m \times 2$ size game and examples

*Tamgave*

Tamgave Namrata Suhas

Name and Signature of Teacher



*P.M. Dessai*

(Prof. P.M. Dessai)

**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.



**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of Teacher: Shital Dhondiram Chavan

Program: B.Sc. Computer Science (Entire)-I

Semester: I

Subject: Mathematics

Course Title: Discrete Mathematics

Month :August			Module/Unit: I	Sub-units planned
Lectures	Practicals	Total	1.Counting Principle and Practicals	1.Set: Definition, Types of sets. 2.Counting: Addition & Multiplication principle, Permutation & Combination 3.Cardinality of finite set 4.Cardinality of union of sets (Addition principle) Principle of inclusion & exclusion, Combinatorial Arguments,Pigeonhole Principle
24	40	64		
Month: September			Module/Unit: I and III	Sub-units planned
Lectures	Practicals	Total	1.Counting Principle	5. Combinatorial Arguments 6.Pigeonhole Principle (Statement Only), Examples
24	40	64		
			2. Recurrence relations and Practicals	1.Introduction 2.Linear Recurrence relation with constant coefficient 3.Homogeneous solutions 4.Particular & Total solutions
Month : Octomer			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	Logic	1.Propositions & Logical connectives: Definition, 2.Types o Propositions, Truth values & Truth 3.Tables, Tautology & Contradiction, Logical equivalence 4.Rules of inferences 5.Valid arguments & proofs 6. Methods of proofs : Direct & indirect 7. Duality of the statement,Predicates & Quantifier
24	40	64		



Month : Nonember			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	Fuzzy Mathematics	1 Introduction: Fuzzy numbers, Fuzzy set. 2 Classical logic 3 Applying truth values- continuous variable 4 Linguistic variables 5 Types of Fuzzy Logics 6 Advantages of Fuzzy Logic 7 Disadvantages of Fuzzy Logic
24	40	64		

*Shital Dhondiram Chavan*

Shital Dhondiram Chavan

Name and Signature of Teacher



*P.M. Dessai*

(Prof. P.M.dessai)

**Head**

Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.

Vivekanand College, Kolhapur (Autonomous)

B.Sc. Computer Science (Entire)

Academic Year: 2022-2023

Annual Teaching Plan

Name of Teacher: Ms. Shital Dhondiram Chavan

Program: B.Sc. Computer Science (Entire)-II

Semester: III

Subject: Mathematics

Course Title: Practicals

Month: August			Module/Unit	Subunits Planned
Lectures	Practical	Total	Linear algebra	1. Gauss Elimination method 2. Gauss Jordan method 3. LU Factorization method 4. Gram Schmidt process
00	68	68		
Month: September			Module/Unit	Subunits Planned
Lectures	Practical	Total	Linear algebra	5. Eigen values and Eigen vectors 6. Diagonalizable Matrix 7. Verification of Cayley Hamilton theorem 8. Inverse of a matrix using Cayley Hamilton Theorem
00	40	40		
Month: October			Module/Unit	Subunits Planned
Lectures	Practical	Total	Numerical Method	9. Bisection method 10. Regula-Falsi method and Newton-Raphson method 11. Newton Forward and Backward interpolation 12. Newton Forward and Backward interpolation
00	40	40		
Month: November			Module/Unit	Subunits Planned
Lectures	Practical	Total	Numerical Method	13. Newton's divided difference formula 14. Trapezoidal, Simpson $\frac{1}{3}$ rd, and Simpson $\frac{3}{8}$ th rule 15. Computer program for 1) Euler's method 2) Euler's modified method 3) Runge-Kutta method (second and fourth order) 4) Computer Program for 1) Trapezoidal rule 2) Simpson $\frac{1}{3}$ rd rule 3) Simpson $\frac{3}{8}$ th rule
00	40	40		

Ms. Shital Dhondiram Chavan  
Name and Signature of Teacher



(Prof. P. M. Dessai)

Head  
Dept. of B.Sc. Comp. Sci. (Entire)  
Vivekanand College, Kolhapur.



**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

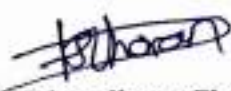
Name of the teacher: Ms. Shital Dhondiram Chavan  
 Programme – B.Sc. Computer Science ( Entire)-I  
 Subject: Mathematics

Semester - II  
 Course Title :Calculus


Month: January			Module/Unit :I	Subunits Planed
Lectures	Practical	Total	Sequences of real numbers and practicals	1 Sequences of real numbers: definition, examples 2 Convergent, divergent, oscillatory sequences, definition & examples 3 Bounded sequence : definition & examples 4 Monotonic sequences, theorem on monotonic & bounded sequences( statement only) 5 Show that $\left\{\left(1 + \frac{1}{n}\right)^n\right\}$ is convergent & its limit is 'e'. 6 Convergence of sequence $\{x^n\}$ , where $x \in \mathbb{R}, x > 0$ .
24	44	68		
Month: February			Module/Unit :II	Subunits Planed
Lectures	Practical	Total	Series of real numbers and practicals	1 Partial sums 2 Convergent, divergent series, definition & examples 3 Convergence of geometric series(with proof) 4 Comparison test & its limit form ( for the series of positive term) 5 Convergence of p-series ( with proof) 6 D'Alembert's ratio test (statement only) & examples 7 Root test ( statement only) & examples
24	40	64		



Month: March			Module/Unit :III	Subunits Planed
Lectures	Practical	Total	Continuity & Mean Value Theorem and practicals	1 Continuity of a function & its properties defined on $[a,b]$ (properties without proof) 2 Differentiability, Differentiability implies continuity but not conversely 3 Rolle's theorem (with proof) & its geometric significance & examples 4 Lagrange's mean value theorem (with proof) & its geometric significance & examples 5 Cauchy's mean value theorem ( with proof) & examples
24	40	64		
Month: April			Module/Unit :IV	Subunits Planed
Lectures	Practical	Total	Successive differentiation and practicals	1 $n^{\text{th}}$ derivatives of some standard functions 2 Leibnitz's theorem (with proof) & examples 3 L'Hospital's Rule( without proof) & examples 4 Taylor's & Maclaurin's theorems with Lagrange's forms. 5 Taylor's & Maclaurin's series 6 Series expansion of $e^x, \sin \sin x, \cos \cos x, \log \log(1+x)$ etc.
24	40	64		

  
 Ms. Shital Dhondiram Chavan  
 Name and Signature of Teacher



  
 (Prof. P. M. Dessai)  
**Head**  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.

**Vivekanand College, Kolhapur (Autonomous)**  
**B.Sc. Computer Science (Entire)**  
**Academic Year: 2022-2023**  
**Annual Teaching Plan**

Name of Teacher: Ms. Shital Dhondiram Chavan

Program: B.Sc. Computer Science (Entire)-II

Semester: IV


Subject: Mathematics

Course Title: Practicals

Month: January			Module/Unit	Subunits Planned
Lectures	Practical	Total	Computational Geometry	1.Plane Linear transformation 1 2.Plane Linear transformation 2 3 Space linear transformation 1  4 Plane Curves 1
00	40	40		
Month: February			Module/Unit	Subunits Planned
Lectures	Practical	Total	Computational Geometry	5Plane Curves 6Bezier Curve: Generation of curve with $n = 2, 3$ 7 Linear programming Problem 1  8 Linear programming Problem 2
00	40	40		
Month: March			Module/Unit	Subunits Planned
Lectures	Practical	Total	Operations Research	9 Initial solution of transportation problem 10 MODI method 11 Transportation problem-minimization 12 Maximization in transportation problem, Unbalanced transportation problem
00	40	40		
Month: April			Module/Unit	Subunits Planned
Lectures	Practical	Total	Operations Research	13 Hungarian method 14 Maximization in assignment problem, Unbalanced assignment problem 15 Game Theory 1 16 Game Theory 2
00	40	40		

  
 Ms. Shital Dhondiram Chavan  
 Name and Signature of Teacher



  
 (Prof. P. M. Dessai)  
**Head**  
 Dept. of B.Sc. Comp. Sci. (Entire)  
 Vivekanand College, Kolhapur.



Annual Teaching Plan Academic year 2022-2023

Semester I Department -Department of Computer Science Entire

Subject - Statistics

Title -DESCRIPTIVE STATISTICS -I

**Section I- Descriptive Statistics I**

Name of teacher – Mr.Pawar A.A.

Month: June-July			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Introduction	1.1 Definition and concept Statistics, Population and Sample: Concept of statistical population with illustrations, concept of sample with illustrations. 1.2 Methods of sampling: Simple Random Sampling and Stratified Random Sampling (description only). 1.3 Data Condensation: Raw data, Attributes and variables, discrete and continuous variables, classification and construction frequency distribution.
Month-August				
Lectures 12	Practicals 20	Total 32	Unit-1 Introduction	1.4 Graphical Representation: Histogram, Frequency polygon, Frequency curve, Ogive curves and their uses. 1.5 Examples and Problems.
			Unit-2 Measure of Central Tendency	2.1 Concept of central tendency, Criteria for good measures of central tendency. 2.2 Arithmetic mean: Definition, computation for ungrouped and grouped data, combined mean, weighted mean, merits and demerits. 2.3 Median: Definition, computation for ungrouped and grouped data, graphical method, merits and demerits. 2.4 Mode: Definition, computation for ungrouped and grouped data, graphical method, merits and demerits. 2.5 Quartiles: Definition, computation for ungrouped and grouped data graphical method, Box Plot. 2.6 Numerical problems
Month-September				



Lectures 10	Practicals 12	Total 22	Unit-3 Measures of dispersion Unit-3	<p>3.1 Concept of dispersion and measures of dispersion, absolute and relative measures of dispersion.</p> <p>3.2 Range and Quartile Deviation: definition for ungrouped and grouped data, and their coefficients, merits and demerits.</p> <p>3.3 Mean Deviation: Definition for ungrouped and grouped data, minimal property (statement only).</p> <p>3.4 Standard deviation and Variance: definition for ungrouped and grouped data, coefficient of variation, combined variance and s. d. for two groups, merits and demerits.</p> <p>3.5 Numerical problems.</p>
Month: October-November				
Lectures 10	Practicals 12	Total 22	Unit-4 Moments, Skewness & Kurtosis	<p>4.1 Raw and central moments: definition for ungrouped and grouped data (only first four moments), relation between central and raw moments (statements only).</p> <p>4.2 Measures of skewness: Types of skewness. Pearson's and Bowley's coefficients of skewness. Measures of skewness based on moments.</p> <p>4.3 Measures of kurtosis: Types of kurtosis. Measures of kurtosis based on moments.</p> <p>4.4 Numerical problems.</p>

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*Pawar A.A.*  
 Name and Signature of teacher

Mr.PawarA.A.

Annual Teaching Plan Academic year 2022-2023

Semester I Department -Department of Computer Science Entire

Subject - Statistics

Title - Probability and Discrete Probability Distributions-I

Section I- Probability and Discrete Probability Distributions-I

Name of teacher – Mr.Pawar A.A.

Month: June-July			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Probability:	1.1 Idea of permutation and combination, concept of experiments and random experiments. 1.2 Definitions: sample space (finite and countably infinite), events, types of events, power set (sample space consisting at most 3 sample points). 1.3 Illustrative examples. 1.4 Classical (apriori) definition of probability of an event, equiprobable sample space, simple examples of probability of an events based on permutations and combinations, axiomatic definition of probability with reference to finite and countably infinite sample space.
Month-August				
Lectures 12	Practicals 20	Total 32	Unit-1 Probability:	1.5 Theorems on probability : i) $P(\Phi) = 0$ ii) $P(A') = 1 - P(A)$ iii) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ iv) If $A \subseteq B$ , $P(A) \leq P(B)$ v) $0 \leq P(A \cap B) \leq P(A) \leq P(A \cup B) \leq P(A) + P(B)$ 1.6 Illustrative examples.
			Unit-2 Conditional probability and independence of events:	2.1 Definition of conditional probability of an event, examples. 2.2 Partition of sample space, Baye's theorem (only statement) and examples. 2.3 Concept of independence of two events, examples. 2.4 Proof of the result that if A and B are independent events then i) A and B', ii) A' and B, iii) A' and B' are also independent. 2.5 Pairwise and complete independence of three events, examples. 2.6 Elementary examples.
Month-September				
Lectures 10	Practicals 12	Total 22	Unit-3 Univariate probability distributions	3.1 Definitions: discrete random variable, probability mass function (p.m.f.), cumulative distribution function (c.d.f.), properties of c.d.f., median, mode and examples. 3.2 Definition of expectation of a random variable, expectation of a function of random



				<p>variable.</p> <p>3.3 Results on expectation : i) <math>E(c) = c</math>, where <math>c</math> is constant. ii) <math>E(aX + b) = a E(X) + b</math>, where <math>a</math> and <math>b</math> are the constants.</p> <p>3.4 Definition of mean and variance of univariate distributions.</p> <p>3.5 Examples</p>
Month: October-November				
Lectures 10	Practicals 12	Total 22	Unit-4 Some standard discrete probability distributions:	<p>4.1 Discrete uniform distribution: p.m.f., mean and variance, examples.</p> <p>4.2 Binomial distribution: p.m.f., mean and variance, additive property of binomial variates, recurrence relation for probabilities, examples.</p> <p>4.3 Geometric distribution: p.m.f., mean and variance, additive property, recurrence relation for probabilities, examples.</p> <p>4.4 Poisson distribution: p.m.f., mean and variance, additive property, recurrence relation for probabilities, Poisson distribution as a limiting case of binomial distribution (without proof), examples.</p>

*Pawar A.A*  
Name and Signature of teacher

Mr.PawarA.A.

  
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Annual Teaching Plan Academic year 2022-2023  
 Semester I Department -Department of Computer Science Entire  
 Subject - Statistics Title -DESCRIPTIVE STATISTICS -II  
**Section I- Descriptive Statistics II**

Name of teacher – Mr.Pawar A.A.

Month: Month: December			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Correlation (for ungrouped data)	Correlation (for ungrouped data) (09) 1.1 Concept of bivariate data, scatter diagram. Concept of correlation, positive correlation, negative correlation, cause and effect relation. 1.2 Karl Pearson's coefficient of correlation, properties of correlation coefficient, interpretation of correlation coefficient. 1.3 Spearman's Rank Correlation coefficient (formula with and without ties). 1.4 Numerical problems.
Month- January				
Lectures 12	Practicals 20	Total 32	Unit-2 Regression (for ungrouped data):	2.1 Concept of regression. Derivation of lines of regression by method of least squares. 2.2 Regression coefficients and their significance. Properties of regression coefficients. 2.3 Point of intersection and acute angle between regression lines (without proof). 2.4 Numerical problems.
Month-February-March				



Lectures 12	Practicals 16	Total 28	Unit-3 Multiple, partial Correlation & Regression (For Trivariate Data)	(10) 3.1 Concept of multiple regressions. Yule's Notations. 3.2 Residual: definition, order, properties, mean and variance of residual. 3.3 Fitting of multiple regression planes(without proof). Partial regression coefficients, interpretations. 3.4 Concept of multiple correlation. Definition of multiple correlation coefficient and its formula. 3.5 Properties of multiple correlation coefficient (statements only) 3.6 Interpretation of multiple correlation coefficient when it is equal zero and one. 3.7 Concept of partial correlation. Definition of partial correlation coefficient and its formula. 3.8 Properties of partial correlation coefficient. 3.9 Examples and problems
Month: April-May				
Lectures 12	Practicals 16	Total 28	Unit-4 Time Series	4.1 Definition and Uses of Time Series, Components of time series, 4.2 Methods of determination of trend. Method of Moving Averages, Method of Least Squares ( only for straight line). 4.3 Determination of Seasonal Variations by Simple Average Method.


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Name and Signature of teacher

Mr.PawarA.A.



Annual Teaching Plan Academic year 2022-2023

Semester 1 Department -Department of Computer Science Entire

Subject - Statistics Title - Continuous probability distributions and Testing of Hypothesis

**Section I-** Continuous probability distributions and Testing of Hypothesis

Name of teacher – Mr.Pawar A.A.

Month: Month: December			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Continuous Univariate Distributions	<p>1.1 Definitions: infinite sample space with illustrations, continuous random variable, probability density function (p.d.f.), cumulative distribution function (c.d.f.), properties of c.d.f.</p> <p>1.2 Expectation of random variable, expectation of function of a random variable, mean, variance and examples.</p> <p>1.3 Uniform distribution: p.d.f., c.d.f., mean, variance and examples.</p> <p>1.4 Exponential distribution: p.d.f., c.d.f., mean, variance, lack of memory property and examples. 1.5 Normal distribution: p.d.f., standard normal distribution, properties of normal curve, distribution of <math>aX+bY</math>, where X and Y are independent normal variates, normal distribution as a limiting case of Binomial and Poisson distributions (without proof), examples.</p>
Month- January				
Lectures 12	Practicals 20	Total 32	Unit-2 Exact sampling distributions:	<p>2.1 Chi-square distribution: definition, chi-square variate as the sum of square of i.i.d. S.N.V., statement of p.d.f., mean, variance, additive property, approximation to normal distribution and examples.</p> <p>2.2 Student's t-distribution: definition, nature of probability curve, State mean and variance, approximation to normal, examples.</p> <p>2.3 Snedecor's F-distribution: definition, State mean and variance, inter-relationships between chi-square, t and F distributions, examples.</p>
Month-February-March				



Lectures 12	Practicals 16	Total 28	Unit-3 Testing of hypothesis	(10) 3.1 Definitions: random samples, parameter, statistic, standard error of a statistic. 3.2 Concept of null and alternative hypothesis, types of error, critical region, level of significance, one sided and two sided tests, general procedure of testing of hypothesis, 3.3 Large sample tests for: i) population mean, ii) Population proportion. 3.4 Small sample tests: i) Test for population variance, Chi-square test for goodness of fit and test for independence of attributes using 2x2 contingency table, ii) t-test for testing population mean. iii) F test for equality of two population variances. 3.5 Examples.
Month: April-May				
Lectures 8	Practicals 12	Total 19	Unit-4 Simulation:	4.1 Introduction to simulation, merits and demerits. 4.2 Pasedo-random number generator, model sampling from uniform and exponential distribution. 4.3 Model sampling from normal distribution using Box-Muller transformation. 4.4 Examples.

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*Pawar A.A.*  
 Name and Signature of teacher  
  
 Mr.PawarA.A.



Annual Teaching Plan Academic year 2021-2023

Semester I Department -Department of Computer Science Entire

Subject - Statistics Title -DESCRIPTIVE STATISTICS -I

Section I- Descriptive Statistics I

Name of teacher – Mr.Kumbhr S.K.

Month: June-July			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Introduction	1.1 Definition and concept Statistics, Population and Sample: Concept of statistical population with illustrations, concept of sample with illustrations. 1.2 Methods of sampling: Simple Random Sampling and Stratified Random Sampling (description only). 1.3 Data Condensation: Raw data, Attributes and variables, discrete and continuous variables, classification and construction frequency distribution.
Month-August				
Lectures 12	Practicals 20	Total 32	Unit-1 Introduction	1.4 Graphical Representation: Histogram, Frequency polygon, Frequency curve, Ogive curves and their uses. 1.5 Examples and Problems.
			Unit-2 Measure of Central Tendency	2.1 Concept of central tendency, Criteria for good measures of central tendency. 2.2 Arithmetic mean: Definition, computation for ungrouped and grouped data, combined mean, weighted mean, merits and demerits. 2.3 Median: Definition, computation for ungrouped and grouped data, graphical method, merits and demerits. 2.4 Mode: Definition, computation for ungrouped and grouped data, graphical method, merits and demerits. 2.5 Quartiles: Definition, computation for ungrouped and grouped data graphical method, Box Plot. 2.6 Numerical problems
Month-September				





Lectures 10	Practicals 12	Total 22	Unit-3 Measures of dispersion Unit-3	<p>3.1 Concept of dispersion and measures of dispersion, absolute and relative measures of dispersion.</p> <p>3.2 Range and Quartile Deviation: definition for ungrouped and grouped data, and their coefficients, merits and demerits.</p> <p>3.3 Mean Deviation: Definition for ungrouped and grouped data, minimal property (statement only).</p> <p>3.4 Standard deviation and Variance: definition for ungrouped and grouped data, coefficient of variation, combined variance and s. d. for two groups, merits and demerits.</p> <p>3.5 Numerical problems.</p>
Month: October-November				
Lectures 10	Practicals 12	Total 22	Unit-4 Moments, Skewness & Kurtosis	<p>4.1 Raw and central moments: definition for ungrouped and grouped data (only first four moments), relation between central and raw moments (statements only).</p> <p>4.2 Measures of skewness: Types of skewness. Pearson's and Bowley's coefficients of skewness. Measures of skewness based on moments.</p> <p>4.3 Measures of kurtosis: Types of kurtosis. Measures of kurtosis based on moments.</p> <p>4.4 Numerical problems.</p>

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Name and Signature of teacher

*[Handwritten Signature]*

Mr.Kumbhr S.K.



Annual Teaching Plan Academic year 2022-2023

Semester I Department -Department of Computer Science Entire

Subject - Statistics

Title - Probability and Discrete Probability Distributions-I

**Section I- Probability and Discrete Probability Distributions-I**

Name of teacher – Mr.Kumbhr S.K.

Month: June-July			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Probability:	1.1 Idea of permutation and combination, concept of experiments and random experiments. 1.2 Definitions: sample space (finite and countably infinite), events, types of events, power set (sample space consisting at most 3 sample points). 1.3 Illustrative examples. 1.4 Classical (apriori) definition of probability of an event, equiprobable sample space, simple examples of probability of an events based on permutations and combinations, axiomatic definition of probability with reference to finite and countably infinite sample space.
Month-August				
Lectures 12	Practicals 20	Total 32	Unit-1 Probability:	1.5 Theorems on probability : i) $P(\Phi) = 0$ ii) $P(A') = 1 - P(A)$ iii) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$ iv) If $A \subseteq B$ , $P(A) \leq P(B)$ v) $0 \leq P(A \cap B) \leq P(A) \leq P(A \cup B) \leq P(A) + P(B)$ 1.6 Illustrative examples.
			Unit-2 Conditional probability and independence of events:	2.1 Definition of conditional probability of an event, examples. 2.2 Partition of sample space, Baye's theorem (only statement) and examples. 2.3 Concept of independence of two events, examples. 2.4 Proof of the result that if A and B are independent events then i) A and B', ii) A' and B, iii) A' and B' are also independent. 2.5 Pairwise and complete independence of three events, examples. 2.6 Elementary examples.
Month-September				
Lectures 10	Practicals 12	Total 22	Unit-3 Univariate probability distributions	3.1 Definitions: discrete random variable, probability mass function (p.m.f.), cumulative distribution function (c.d.f.), properties of c.d.f., median, mode and examples. 3.2 Definition of expectation of a random variable, expectation of a function of random



				variable. 3.3 Results on expectation : i) $E(c) = c$ , where $c$ is constant. ii) $E(aX + b) = a E(X) + b$ , where $a$ and $b$ are the constants. 3.4 Definition of mean and variance of univariate distributions. 3.5 Examples
Month: October-November				
Lectures	Practicals	Total	Unit-4 Some standard discrete probability distributions:	4.1 Discrete uniform distribution: p.m.f., mean and variance, examples. 4.2 Binomial distribution: p.m.f., mean and variance, additive property of binomial variates, recurrence relation for probabilities, examples. 4.3 Geometric distribution: p.m.f., mean and variance, additive property, recurrence relation for probabilities, examples. 4.4 Poisson distribution: p.m.f., mean and variance, additive property, recurrence relation for probabilities, Poisson distribution as a limiting case of binomial distribution (without proof), examples.
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Name and Signature of teacher

Mr.Kumbhr S.K.

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Annual Teaching Plan Academic year 2022-2023  
 Semester I Department -Department of Computer Science Entire  
 Subject - Statistics Title -DESCRIPTIVE STATISTICS -II

**Section I- Descriptive Statistics II**

Name of teacher – Mr.Kumbhr S.K.

Month: Month: December			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Correlation (for ungrouped data)	Correlation (for ungrouped data) (09) 1.1 Concept of bivariate data, scatter diagram. Concept of correlation, positive correlation, negative correlation, cause and effect relation. 1.2 Karl Pearson's coefficient of correlation, properties of correlation coefficient, interpretation of correlation coefficient. 1.3 Spearman's Rank Correlation coefficient (formula with and without ties). 1.4 Numerical problems.
Month- January				
Lectures 12	Practicals 20	Total 32	Unit-2 Regression (for ungrouped data):	2.1 Concept of regression. Derivation of lines of regression by method of least squares. 2.2 Regression coefficients and their significance. Properties of regression coefficients. 2.3 Point of intersection and acute angle between regression lines (without proof). 2.4 Numerical problems.
Month-February-March				



Lectures 12	Practicals 16	Total 28	Unit-3 Multiple, partial Correlation & Regression (For Trivariate Data)	(10) 3.1 Concept of multiple regressions. Yule's Notations. 3.2 Residual: definition, order, properties, mean and variance of residual. 3.3 Fitting of multiple regression planes(without proof). Partial regression coefficients, interpretations. 3.4 Concept of multiple correlation. Definition of multiple correlation coefficient and its formula. 3.5 Properties of multiple correlation coefficient (statements only) 3.6 Interpretation of multiple correlation coefficient when it is equal zero and one. 3.7 Concept of partial correlation. Definition of partial correlation coefficient and its formula. 3.8 Properties of partial correlation coefficient. 3.9 Examples and problems
Month: April-May				
Lectures 12	Practicals 16	Total 28	Unit-4 Time Series	4.1 Definition and Uses of Time Series, Components of time series, 4.2 Methods of determination of trend. Method of Moving Averages, Method of Least Squares ( only for straight line). 4.3 Determination of Seasonal Variations by Simple Average Method.

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Name and Signature of teacher

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Mr. Kumbhr S.K.



## Annual Teaching Plan Academic year 2022-2023

Semester I Department -Department of Computer Science Entire

Subject - Statistics

Title -Continuous probability distribution and testing of Hypothesis

**Section I-** Continuous probability distribution and testing of Hypothesis

Name of teacher – Mr.Kumbhr S.K.

Month: Month: December			Module/Unit	Sub-units planned
Lectures 12	Practicals 16	Total 28	Unit-1 Continuous Univariate Distributions	<p>1.1 Definitions: infinite sample space with illustrations, continuous random variable, probability density function (p.d.f.), cumulative distribution function (c.d.f.), properties of c.d.f.</p> <p>1.2 Expectation of random variable, expectation of function of a random variable, mean, variance and examples.</p> <p>1.3 Uniform distribution: p.d.f., c.d.f., mean, variance and examples.</p> <p>1.4 Exponential distribution: p.d.f., c.d.f., mean, variance, lack of memory property and examples. 1.5 Normal distribution: p.d.f., standard normal distribution, properties of normal curve, distribution of <math>aX+bY</math>, where X and Y are independent normal variates, normal distribution as a limiting case of Binomial and Poisson distributions (without proof), examples.</p>
Month- January				
Lectures 12	Practicals 20	Total 32	Unit-2 Exact sampling distributions:	<p>2.1 Chi-square distribution: definition, chi-square variate as the sum of square of i.i.d. S.N.V., statement of p.d.f., mean, variance, additive property, approximation to normal distribution and examples.</p> <p>2.2 Student's t-distribution: definition, nature of probability curve, State mean and variance, approximation to normal, examples.</p> <p>2.3 Snedecor's F-distribution: definition, State mean and variance, inter-relationships between chi-square, t and F distributions, examples.</p>
Month-February-March				





Lectures 12	Practicals 16	Total 28	Unit-3 Testing of hypothesis	(10) 3.1 Definitions: random samples, parameter, statistic, standard error of a statistic. 3.2 Concept of null and alternative hypothesis, types of error, critical region, level of significance, one sided and two sided tests, general procedure of testing of hypothesis., 3.3 Large sample tests for: i) population mean, ii) Population proportion. 3.4 Small sample tests: i) Test for population variance, Chi-square test for goodness of fit and test for independence of attributes using 2×2 contingency table, ii) t-test for testing population mean. iii) F test for equality of two population variances. 3.5 Examples.
Month: April-May				
Lectures 8	Practicals 12	Total 19	Unit-4 Simulation:	4.1 Introduction to simulation, merits and demerits. 4.2 Pasedo-random number generator, model sampling from uniform and exponential distribution. 4.3 Model sampling from normal distribution using Box-Muller transformation. 4.4 Examples.

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Name and Signature of teacher

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Mr.Kumbhr S.K.

