Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2023-2024

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, Pseudo code conventions • Flowcharts- Definition, Symbol, features.
12		12		
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- operator precedence Programming examples
12		12		
Month:- October			Module/Unit:	Sub-units planned
12		12	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
12		12	Control Structures	Multiple Branching Control Statement – switch-case Loop Control Statements – while –do-while –for –Nested Loops Jump Control statements –break – continue –goto –exit

Pallavi M. Dessai
Name and sign of teacher

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VIVEKANAND COLLEGE KOLHAPUR (Autonomous) ESTD JUNE 1964

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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2023-2024

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

<table>
<tr><td colspan="3">Month:-December</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical's</td><td>Total</td><td rowspan="2">Arrays and strings</td><td rowspan="2">• Array –One dimensional arrays –
• Two dimensional arrays –
• Initializing strings, Reading string , string handling functions</td></tr>
<tr><td>12</td><td></td><td>12</td></tr>
<tr><td colspan="3">Month : January</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical's</td><td>Total</td><td rowspan="2">Function Pointer, dynamic memory allocation and Structure</td><td rowspan="2">• 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,</td></tr>
<tr><td>12</td><td></td><td>12</td></tr>
<tr><td colspan="3">Month : February</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>12</td><td></td><td>12</td><td>Pointer, dynamic memory allocation and Structure</td><td>• 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? Advantages of structures, Defining a Structure , Declaration of Structure Variables , Initialization of Structure Variables , Accessing Structure Members ,
• Storage of Structures in Memory ,Size of Structures, Reading and Displaying Structure Variables , Assignment of Structure Variables</td></tr>
</table>

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				, Pointers to structures, Array of structures , Arrays within structures , Nested structures
Month :March			Module/Unit:	Sub-units planned
12		12	**File Handling**	• Concept of File ,Text and binary files, Opening and closing files, File opening mode- read, write, append • character and integer handling (getc(), putc() , getw() , putw()), Formatted input- scanf(), sscanf(), fscanf(), fread(), • Formatted output- printf(), sprintf(), fprintf(), fwrite() Functions- fseek(), ftell(), fflush(), fclose(), fopen(), rewind()

Pallavi M. Dessai
Name and sign of teacher

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Department of Computer Science Entire

Academic Year: 2023-2024

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:July			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	**Operating System overview**	• 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 , programs
16		16		
Month : August			Module/Unit:	
Lectures	Practical's	Total	**Process Management**	• Process concept, Process states, Process control block (PCB)

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16		16		• 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
Month: September			Module/Unit:	Sub-units planned
16		16	**Memory Management**	• Logical and physical address map , Swapping • Memory allocation- contiguous memory allocation- fixed and variable partition, internal and external fragmentation and compaction. • Paging and virtual memory, demand paging, locality of reference, page fault, dirty page/ dirty bit, page replacement policies FIFO, optimal, LRU, MFU • Disk structure, Disk scheduling- FCFS, SSTF, SCAN, LOOK, CSCAN, CLOOK
Month :October			Module/Unit:	Sub-units planned
16		16	**File management and Deadlocks**	• File concept, access methods- sequential and direct, file types and operations • Allocation method- contiguous, linked and indexed • Definition of deadlock, characteristics • Deadlock prevention, detection and recovery

Pallavi M. Degsai
Name and sign of teacher

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Department of Computer Science Entire

Academic Year: 2023-2024

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 : December/January			Module/Unit:	Sub-units planned
Lectures	Practical 's	Total	**Linux Basics**	• What is an OS? What is Linux • The shell, kernel, Linux file system, login, logout • Different general purpose utility commands (GPU) • Concept of directory, home directory, directory handling commands- PWD, cd, mkdir, rmdir, ls, relative and absolute path • Basic file attributes metacharacters. • Access permission chmod command • File handling commands-
16		16		
Month : February			Module/Unit:	Sub-units planned
Lectures	Practical 's	Total	**Basic filters**	• What is a filter, head, tail, sort, grep, sed, awk • regular expressions and its types ,environment variables-PATH, USER, HOME, UID, TERM, SHELL • concept of process, PID, PS, KILL, FREE
16		16		
Month : March			Module/Unit:	Sub-units planned
16		16	**VI editor**	• What is the VI editor-command mode, insert mode, last line mode • VI editing commands, moving within a file, saving and closing the file • Command mode movement, command mode- making changes, repeating VI actions
Month : April			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

Name and sign of teacher

Pallavi M. Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Mr. Rajesh R Mane

Programme BSc Semester-I

Subject: Introduction to Computer s

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

<table>
<tr><td colspan="3">Month- August</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical's</td><td>Total</td><td rowspan="2">Introduction to Computer</td><td rowspan="2">• Introduction, History.
• Characteristics & features of Computers.
• Components of Computers.
• Organization of Computer.
• Classification of Computers
• Computer Languages
• Types of Programming Languages
• Machine Languages
• Assembly Languages
• High Level Languages
• Assembler, Linker, Loader, Interpreter & Compiler.</td></tr>
<tr><td>06</td><td>12</td><td>18</td></tr>
<tr><td colspan="3">Month -September</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical's</td><td>Total</td><td>Input, Output Devices and Concept of Memory</td><td>• Input Devices :</td></tr>
</table>

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06	12	18		• Touch screen, OMR, OCR, Light pen, Scanners • Output Devices : • Digitizers, Plotters, LCD, Plasma Display, Printers and its types • Types of Memory (Primary And Secondary) • RAM, ROM, PROM, EPROM Secondary Storage Devices (FD, CD, HD, Pen drive, DVD, Tape Drive,USB

Month -October			Module/Unit:	Sub-units planned
06	12	18	**Operating System concepts**	• Why Operating System • History of operating system • Functions of Operating System • Types of Operating System • Introduction to Computer Virus, how does it spread? Symptoms of it, Types of Virus, Antivirus, Prevention from Virus.
Month -November			Module/Unit:	Sub-units planned
06	12	18	**MS Word** **MS PowerPoint** **Practicals as per list given in syllabus**	• MS Word -Word Processing, features of word processing, menus and commands ,toolbars and buttons, word formatting toolbar , creating document, saving a document, printing a document, Paragraph setting, mail merge, graphs ,pictures, image, working with tables. • MS Power point - Introduction to PowerPoint, Creating a Presentation, PowerPoint views, Slide show, Formatting slides, Slide transition & adding special

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				effects, Inserting pictures, sound, chart.

Name and Signature of Teacher

Mr.Rajesh R Mane

Name and Signature of HOD

Pallavi M Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

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	**Introduction to Database**	• Introduction to DB, database Terminologies, RDBMS basic. • DBMS Vs RDBMS with examples • Relational Algebra, Keys –Primary key & Foreign key, Normalization concept.
06	12	18		
Month -Febuary			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	**MS –Access**	• Working With Ms-Access - Tables,

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06	12	18		Queries, Forms, Reports, and Macros. Introduction to MsAccess, Designing Database, Crating Database using Wizard, • Working with Table. Field types – Auto number, Date/Time, Number, Text, Yes/No, Hyperlink. Creating Tables using Design View and Using wizard, Editing Table, Editing Records. Query and Form Designing

Month -March			Module/Unit:	Sub-units planned
06	12	18	**Introduction to HTML**	• HTML Documents • Basic structure of an HTML document • Creating an HTML document • Mark up Tags • Heading-Paragraphs • Line Breaks • HTML Tags.

Month -April			Module/Unit:	Sub-units planned
06	12	18	**Images, Tables Frames, Image Maps, Forms in HTML** **Practicals as per list given in syllabus**	• 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.

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Name and Signature of Teacher

Mr.Rajesh R Mane

Name and Signature of HOD

Pallavi M Dessai

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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Mrs. Vaishali C. Dalvi

Programme BSc Entire (BCS) Semester- V

Subject: computer science Course Title: C#.Net programming

Month –July			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction	• Event driven & sequence driven programming • Introduction to c#, .net framework architecture • Assembly Namespace, Garbage collector JIT compilers
16	16	32		
Month –August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Data Types & Control Structure	• Variables, expressions, constants, Data Types , Operators, implicit & explicit conversions • Conditional statements • Loop statements • Unconditional statement
16	16	32		
Month – September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Working with Classes	• Class & objects • Constructors • Inheritance • Polymorphism
16	16	32		
Month –October			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Developing GUI applications with Win Form	• Different controls in win form – Forms, textbox, labels, buttons, radio buttons, check box, combo box, list box, Date time picker • Important properties of controls, Important events of each control
16	16	32		
Month – November				Sub-units planned
Lectures	Practical's	Total	Developing GUI applications with Win Form	• 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
16	16	32		

Name and Signature of Teacher

Vaishali Dalvi

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of HoD

Pallavi Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

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 –December			Module/Unit:	Sub-units Completed
Lectures	Practical's	Total	Exception Handling	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 –January			Module/Unit:	Sub-units Completed
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 – February			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
16	16	32		
Month – March			Model/Unit:	Sub-units completed
				• Details Working with formula fields, Parameter fields • Working with Multiple Tables Introduction to ASP. NET
Month – April			Module/Unit:	Sub-units Completed
Lectures	Practical's	Total	Introduction to ASP.Net with c#	• 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		

Name and Signature of Teacher

Vaishali Dalvi

Name and Signature of HoD

Pallavi Dessai

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DEPARTMENT OF B.SC. COMPUTER SCIENCE (ENTIRE)
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VIVEKANAND COLLEGE KOLHAPUR (EMPOWERED AUTONOMOUS) ESTD JUNE 1934

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

Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2023_24

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 –July			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to java	•A Short History of Java, • Features of Java, • Java tools-JDK, JRE. • structure of java program –compilation and execution of program • JVM, Types of Comments, Data Types, Final Variable • Type Conversions -implicit and explicit conversion • Accepting input from console (Using scanner class and command line arguments).
16	16	32		
Month –August			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	control statements, Classes and objects	•Control statements, for-each loop, Varargs, Declaring 1D, 2D array • Defining Classes, objects and method - method overloading • Array of Objects, Constructor, Overloading Constructors and use of 'this' Keyword • static keyword, • methods (equals (), toString (), Wrapper Classes, finalize () Method
16	16	32		
Month –September			Module/Unit:	Sub-units planned
16	16	32	Package, Inheritance and Interface	•Package- Introduction to all predefined packages, User Defined Packages, Access Specifiers •Inheritance -Types of Inheritance- • Method Overriding • Super Keyword, final keyword • abstract class and abstract methods • Defining and Implementing Interfaces
Month -October			Module/Unit:	Sub-units planned
16	16	32	Exception Handling and Multithreading	Exception Handling- Concept, types, try and catch block, multiple catch, Try-catch –finally block, throw and throws clause, finally clause. • 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.

Name and Signature of Teacher

Miss. Nita N.Bargale

Name and Signature of HOD

Miss Pallavi M,Dessai

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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2023-2024

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 Swing	fundamentals of Swing-what is JFC, Hierarchy of Java Swing classes,The MVCArchitecture ,Components – JFrame, JButton, JLabel, JText, JTextArea, JCheckBox and JRadioButton, JList, JComboBox, JMenu ,JtabbedPane , JScrollBar , Dialogs (Message,confirmation, input)Layout Managers (Flow Layout, Border Layout, Grid Layout, Card Layout) Events- Action Event Class, Window Event class, ItemEvent class,Event Listener Interface: Action Listener, Window Listener, ItemListerner
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
16	16	32	**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
Month –April			Module/Unit:	Sub-units planned
16	16	32	**JSP**	Introduction, Jsp LifeCycle, Jsp Implicit Objects & Scopes, Jsp Directives,Jsp Scripting Elements , Simple application using JSP. Difference between JSP and Servlet

Name and Signature of Teacher

Miss. Nita N.Bargale

Name and Signature of HOD

Miss Pallavi M,Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Miss Radhika M.Patil

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

Subject: Computer Science **Course Title:** Object Oriented Programming Using C++

Month August 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	**Introduction to C++ and Basics of Object Oriented programming Concepts**	• Introduction to C++: Structure of C++ program, Input and output Streams, • Memory • management operators: new and delete, this pointer, Reference variables, Control Structures (looping and branching statements) • Functions: inline function, default argument, function overloading.OOP • Concepts: Data abstraction, Data Encapsulation, Inheritance, Polymorphism, Message Passing
16	12	28		
Month Sept 2023			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	**Class, Object, Constructor, Destructor.**	• Class declaration, Access modifiers: public, private, protected, defining member functions (inside the class and outside the class) • Constructor and Destructor: Definition and features of constructor, Types of constructor, • Definition, syntax and use of Destructor
16	12	28		
Month Oct 2023			Module/Unit:	Sub-units planned

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16	12	28	**Static members, friend function and class, Operator Overloading**	• Static data members and member function, Array of object, friend function and friend class. • Operator overloading :Concept, Rules for operator overloading, Unary and Binary Operator overloading
Month Nov 2023			Module/Unit:	Sub-units planned
16	12	28	**Inheritance and Polymorphism**	• Inheritance: Concept, Definitions of base class and derived class, Types of inheritance (Single, Multiple, Multilevel, Hierarchical and Hybrid inheritance) • Polymorphism: Definition of polymorphism, Types of polymorphism, virtual function, pure virtual function, Abstract class..

Name and Signature of Teacher

Miss Radhika M. Patil
(HOD)

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of HoD

Miss Pallavi M. Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Miss Radhika M.Patil

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

Subject: Computer Science **Course Title:** Introduction to Data Structure Using C++

<table>
<tr><td colspan="3">Month Jan 24</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical's</td><td>Total</td><td rowspan="2">Introduction to Data structure and Linear Data Structures (Array, Stack, Queue)</td><td rowspan="2">• Introduction to Data Structure Definitions: Data types, Data Object, Data structure, Abstract Data Type (concept), Data Structure classification
• Algorithm Efficiency: Complexity, Big O notation,
• Array: Definition, Types of array (one dimensional and multidimensional), Sparse matrices.</td></tr>
<tr><td>16</td><td>12</td><td>28</td></tr>
<tr><td colspan="3">Month Feb 24</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical's</td><td>Total</td><td rowspan="2">Searching and Sorting</td><td rowspan="2">• Searching: Linear search and binary search
• Sorting: Bubble Sort, Selection Sort, Insertion sort, Merge Sort.</td></tr>
<tr><td>16</td><td>12</td><td>28</td></tr>
<tr><td colspan="3">Month March 24</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>16</td><td>12</td><td>28</td><td>Stack and Queue</td><td>• Stack: Definition of Stack, Operations on Stack, Static Implementation of stack
• Applications of stack: Recursion, inter conversions between</td></tr>
</table>

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				infix, prefix and postfix expressions. • Queue: Definition of Queue, Operations on Queue, Static Implementation of • Queue.Types of Queue: Linear, Circular and Priority queue • Applications of Queue.
Month April 24			Module/Unit:	Sub-units planned
16	12	28	**Linked List, Trees.**	• Linked List: Concept of Linked List, Operations on Linked List, Implementation of Linear Linked List, Types of Linked List, • Implementation of stack and queue using linked list • Trees: Definition of tree, Tree terminologies, Types of Tree, Tree Traversal(inorder, preorder, postorder).

Name and Signature of Teacher

Miss Radhika M. Patil

(HOD)

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of HoD

Miss Pallavi M. Dessai

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Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Miss Radhika M.Patil

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

Subject: Computer Science **Course Title:** Data Communication

Month August 23			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	**Basics of Data communication**	• Concept of data communication, Components: sender, receiver, message, Transmission media, Data Representation, • Data Flow- Simplex, Half-duplex, and Full-duplex. • Networks: Definition, Advantages and disadvantages. • Network Architecture: Client/Server and Peer to Peer
16		16		
Month Sept 23			**Module/Unit:**	**Sub-units planned**
Lectures	Practical's	Total	**Transmission media and modes**	• Guided Media- Twisted-Pair Cable, Coaxial Cable and Fiber Optic Cable. • Unguided Media: Radio Waves, Microwaves, Infrared Waves. • Transmission Modes: Parallel, Serial- Asynchronous, Synchronous, Isochronous
16		16		
Month Oct-23			**Module/Unit:**	**Sub-units planned**
16		16	**Multiplexing, Switching Techniques and Protocols and Standards**	• Multiplexing: Frequency-Division Multiplexing, Wavelength-Division Multiplexing, Time Division Multiplexing. • Switching: Circuit switching- data gram and virtual circuit Switching,

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				Packet Switching and Message Switching. • Protocols: concept, syntax, semantics, Timing
Month Nov 23			Module/Unit:	Sub-units planned
16		16	**Physical Layer and Data Link Layer**	• Physical layer: Digital-to-analog conversion: concept, Amplitude Shift Keying, • Frequency Shift Keying, Phase Shift Keying. Analog-to-digital conversion: Pulse Code • Modulation (PCM), Delta Modulation (DM).Data link layer: Design issues, Framing, • Error Detection and Correction.

Name and Signature of Teacher

Miss Radhika M. Patil

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of HoD

Miss Pallavi M. Dessai
(HOD)

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DEPARTMENT OF B.SC. COMPUTER SCIENCE
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Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Computer Science Entire

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Miss Radhika M. Patil

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

Subject: Computer Science **Course Title:** Computer Network

Month Jan 24			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	**Data Link Layer Protocols, Network Layer**	• Protocols- Sliding window protocol: one bit sliding window protocol, protocol using • Go Back N, protocol using selective repeat. • Network Layer: Design issues, Concept of Routing.
16		16		
Month Feb 24			**Module/Unit:**	**Sub-units planned**
Lectures	Practical's	Total	**Network Layer and Transport Layer**	• Routing Algorithms (Shortest Path, Flooding, Distance Vector Routing). • Congestion Control Algorithms: Leaky Bucket, Token Bucket . • Transport Layer: Services: connection oriented and connection less services. • Transport Layer Primitives: listen, connect, send, receive, disconnect. Protocols: TCP, UDP.
16		16		
Month March-24			**Module/Unit:**	**Sub-units planned**
16		16	**Session and Presentation layer**	• Session layer: Services: dialog management, synchronization, activity • Management, exception handling Remote procedure calls (RPC).

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				• Presentation Layer: Services- Translation, compression, encryption • 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).
Month April 24			Module/Unit:	Sub-units planned
16		16	**Application layer**	• Application layer: Function. Protocols- Domain name system (DNS), Hypertext • Transfer Protocol (HTTP), Simple Mail Transfer Protocol (SMTP), Telnet, File • Transfer Protocol (FTP).

Name and Signature of Teacher

Miss Radhika M. Patil

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of HoD

Miss Pallavi M. Dessai

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Vivekanand College, Kolhapur (Autonomous)
Department of B Sc Computer Science Entire
Academic Year: 2023-2024
Annual Teaching Plan

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

Subject: Computer Science **Course Title: Software Engineering with UML**

Month- Aug 2023			**Module/Unit:**	**Sub-units planned**
Lectures	Practical's	Total	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
16	20	36		
Month – Sept 2023			**Module/Unit:**	**Sub-units planned**
Lectures	Practical's	Total	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
16	20	36		
Month- Oct 2023			**Module/Unit:**	**Sub-units planned**
16	20	36	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 2023			**Module/Unit:**	**Sub-units planned**
16	20	36	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 (α / β), Integration testing, Black box testing, White box testing. 2) Operating System DOS commands implementation

Name and Signature of Teacher
Miss. Nadiya Dara Patel

Name and Signature of HOD
Miss. Pallavi M. Dessai

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Department of Computer Science Entire
Academic Year: 2023-2024
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 2024			**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 2024			**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 2024			**Module/Unit:**	**Sub-units planned**
16	04	20	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
Month- April 2024			**Module/Unit:**	**Sub-units planned**
16	04	20	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

Name and Signature of Teacher
Miss. Nadiya Dara Patel

Name and Signature of HOD
Miss. Pallavi M. Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

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	•What is data and database •Concept of Database Management System • Concept of RDBMS, RDBMS Terminology • Who is DBA and responsibilities of DBA • Relational Model: Structure of Relational Databases, Relational algebra • Data Flow Diagram: Concept of DFD, Symbols, Levels of DFD's, example
16	08	24		
Month –September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to Data Models and Normalization	•Entity Relationship Diagram: Concept of Entity, Attributes, Symbols, Type of relations, examples • Normalization: Forms of Normalization-1NF,2NF,3NF,BCNF
16	08	24		
Month -October			Module/Unit:	Sub-units planned
16	08	24	Introduction to MySQL	•What is MySQL, features of MySQL •Basic Data Type in MySQL •Classification of Commands-DDL,DML,DCL,TCL •Data Constraints-Primary key, Foreign key, Unique, NOT NULL, Check, Default • Select statement with-where, group by, order by clause • SQL operators: Logical, Relational/Comparison, Special – In, Between, Like •SQL functions: Arithmetic, Date and Time, Aggregate functions
Month –November			Module/Unit:	Sub-units planned
16	08	24	MySQL Sub-Queries and Joins	•Introduction to Sub Queries: Sub queries, Nested Sub query •Introduction to Joins: Simple/Inner two table join, Left, Right ,Outer, Self Join •Views, Indexes, Sequences •Introduction to Cursors and trigger

Name and Signature of Teacher
Miss Shruti S.Patil

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Name and Signature of HoD
Miss 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: 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	•Computer Network: Definition, Types of Network • Topologies, Network devices •Internet, Search Engines, Web Browsers •OSI Model, TCP IP Model •IP address scheme, •switching techniques.
16	08	24		
Month –February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Introduction to Cyber security	•Introduction to Cyber Security: Definition, Importance •Computer ethics, Hacker, Hacking phases, Hacker classes • Mobile Device Security, File Security, Password Security, Browser Security, Email Security, •Encryption, Decryption, •Digital Signature, spoofing.
16	08	24		
Month –march			Module/Unit:	Sub-units planned
16	08	24	Introduction to information security and threats	•Security Threats: Definition •Types of Threats Web application threats. •Torrent and infected websites •Firewall, types of firewall Antivirus-Definition, Types, features, advantages, limitations, •difference between Firewall and Antivirus. •Definition of attack, Types of Attacks •What is cyber crime? and types of crime.
Month –April			Module/Unit:	Sub-units planned
16	08	24	Access Control and cyber security laws	•Computer Forensics, Steganography, elements of information security •Introduction to Kali Linux •Access Controls • Overview of Intrusion Detection Systems and Intrusion Prevention Systems. • Wireless Network Security-Concept and its security. • Cyber Security Laws

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Name and Signature of Teacher
Miss Shruti S.Patil

Name and Signature of HoD
Miss Pallavi Kashi

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Department of Computer Science Entire

Academic Year: 2023-2024

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	Fundamental Of Computers	•Demonstration of peripherals •Linking of various peripherals • Operation of all keys of keyboard •DOS – external and internal commands, batch files commands
00	12	12		
Month –September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Windows Operating System and Ms Word	•Windows Operating System – Windows explorer, program manager, control panel, print manager, Creating folders, files, icons, shortcuts • 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 •Mail merge – Data source, Main document, creating mail merge document.
00	12	12		
Month –October			Module/Unit:	Sub-units planned
00	12	12	MS – EXCEL and MS ACCESS	•MS – EXCEL - Creating worksheet, Graphs, resizing graphs, formulas, if statement, types of functions •MS ACCESS - Creating data bases, writing queries
Month –November			Module/Unit:	Sub-units planned
00	12	12	C Programs	•Program to print biodata. •program to perform all arithmetic operations • program to check whether given number is even or odd. • program to find largest among three numbers.

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Name and Signature of Teacher
Miss Shruti S.Patil

Name and Signature of HoD
Miss Pallavi M. Dessai

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Department of Computer Science Entire

Academic Year: 2023-2024

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 programming

Month –January			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	C Program	• program to display Fibonacci series. • program to find Factorial of Given Number. • program to reverse the given number. • program to find prime number. • program to demonstrate switch statement.
00	12	12		
Month –February			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	C Program	• program to calculate sum and average of given n numbers using array • program to calculate Matrix Addition, Multiplication
00	12	12		
Month –march			Module/Unit:	Sub-units planned
00	12	12	HTML Program	•programs on basic tags • programs on order and unordered list •programs on table tags
Month –April			Module/Unit:	Sub-units planned
00	12	12	HTML Program	•programs on image tag •programs on hyperlink •programs on frame tag And form tag

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Name and Signature of Teacher
Miss Shruti S.Patil

Name and Signature of HoD
Miss Pallavi M. Dessai

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Department of Computer Science Entire
Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Ms. Samrin Z. Mullani

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	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.•
16		16		
Month September			Module/Unit:	Sub-units planned
Lectures	Practical's	Total	Electronic Data Interchange (EDI)	Meaning of EDI. History of EDI. EDI Working Concept. 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•
16		16		
Month October			Module/Unit:	Sub-units planned
16		16	E-Payment Systems	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-

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				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
Month November			Module/Unit:	Sub-units planned
16		16	E-Security Issues and Threats	Secure Transaction concept – Authentication & Authorization. Privacy on Internet.• Computer Crime Types and laws. Viruses -Types of Attacks.• Vulnerability of Internet Sites. Denial-of-Service attacks.• Cryptograpghy-Encryption, Decryption. SSL –SET.• Firewall.• Digital Certificates. Digital signatures•

Name and Signature of Teacher

Ms. Samrin Z. Mullani

Name and Signature of HOD

Pallavi M Dessai

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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science Entire

Academic Year: 2023-2024

Annual Teaching Plan

Name of the teacher: Ms. Samrin Z. Mullani

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 February			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•

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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

Name and Signature of Teacher

Ms. Samrin Z. Mullani

Name and Signature of HOD

Pallavi M Dessai

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VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR-416 003

Vivekanand College, Kolhapur (Autonomous)

Department of B.Sc. Computer Science Entire

Academic Year: 2023-24

Teaching Plan

Name of the teacher: Mr. N. P. Mote

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

Subject: Electronics Course Title: Analog Electronics

Month : July 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 1:Basic Circuit Elements**	*Resistors*: Classification, colour code, specifications of resistors, etc. *Capacitors*: Definition, Capacitance, classification of capacitors, *Inductors*: - Definition, symbol, Inductance, Inductive reactance (XL), Types of Inductors: *Transformers*:-Principle and construction of transformer, Types of Transformer: - *Switches*: Explanation using Symbols. *Relay*: - Principle, construction and working of electromagnetic relay, etc.
16	80	96	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: August 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 2: Semiconductor Diodes**	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 resister for LED, Applications- Optocoupler, 7-segment display.
16	80	96	Practicals: GROUP B: 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.	
Month : September 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		

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16	80	96	**UNIT 3:Bipolar Junction Transistor** 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 α and β, DC load line and Q point, potential divider Biasing, Concept of transistor as an amplifier and transistor as a switch..
Month : October 2023			Module/Unit:	Sub-units planned
16	80	96	**UNIT 4: Amplifiers**: 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, **Cascaded Amplifiers**: Two stage RC, LC, TC and DC Coupled Amplifiers and their Frequency Responses.

Mr. N. P. Mote

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Miss P. M. Dessai
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Vivekanand College, Kolhapur (Autonomous)

Department of B.Sc. Computer Science Entire

Academic Year: 2023-24

Teaching Plan

Name of the teacher: Mr. N. P. Mote

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

Subject: Electronics Course Title: Instrumentation

Month : December 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 1:Transducers and Sensors**	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), optical sensor (LDR), displacement sensor (LVDT)
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:January 2024			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 2: Signal Conditioning**	Introduction to signal conditioning, Block diagram of Op-Amp, ideal characteristics of Op-Amp, Applications of Op-Amp: Inverting amplifier, Non inverting amplifier, Voltage follower, Adder, Subtractor, Comparator, Three Op-Amp instrumentation amplifier, Introduction to Op-Amp Attenuators, I to V converter, Sample and Hold circuit.
16	80	96	Practicals: GROUP B: 9. Study of Decimal to BCD Encoder. 10. Study of BCD to Seven segment Decoder 11. Arithmetic Operation using uP8085 – I. 12. Arithmetic Operation using uP8085 – II.	

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Month : February 2024			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
16	80	96	**UNIT 3: Data Converters** 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	Photodiode and LED, Current limiting resister Digital to Analog Converter (DAC): Resistive divider, R-2R ladder, Parameters: (Linearity, resolution, accuracy) Analog to Digital Converter: Types of ADC: Flash, Successive approximation, Parameters of ADC (Linearity, resolution, conversion time, accuracy)
Month : March 2024			Module/Unit:	Sub-units planned
16	80	96	**UNIT 4:Digital Instruments and Data Acquisition** Practicals: GROUP B : 13. Block transfer using uP8085. 14. Block Exchange using uP8085	Introduction, Digital Multimeters, Digital Frequency Meter, Digital Tachometer, Digital pH Meter, Digital Phase Meter, Generalized Data Acquisition System, Data Logger.

Mr. N. P. Mote

VIVEKANAND COLLEGE ESTD. JUNE 1964 KOLHAPUR

Miss P. M. Dessai

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Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science (Entire)

Academic Year: 2023-24

Annual Teaching Plan

Name of the teacher: Dr. Milind S. Patil

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

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

Month : July 2023			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: August 2023			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 : September 2023			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

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				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 : October 2023			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)	

Dr. Milind S. Patil

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Miss P.M.Desai

HEAD
DEPARTMENT OF B.SC. COMPUTER SCIENCE
(ENTIRE)
VIVEKANAND COLLEGE KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)

Department of Computer Science (Entire)

Academic Year: 2023-24

Annual Teaching Plan

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

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

Subject: Electronics Course Title: **GEC-1301 D Section- II 8051 Programming, Interfacing and Raspberry Pi**

Month : December 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	Raspberry Pi Introduction to Single board computer:	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	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: January 2024			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). 7.Study of [illegible] 8.Study of [illegible] sensor	
Month : February 2024			Module/Unit:	Sub-units planned

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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 : March 2024			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.	

Dr. Milind S. Patil

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

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DEPARTMENT OF B.SC. COMPUTER SCIENCE (ENTIRE)
VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)

B. Sc. Computer science Entire

Department of Electronics

Academic Year: 2023-24

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 : July 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	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 (calculation of ripple).	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, Representation of signed and unsigned numbers
8	32	40		
Month: August 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Lectures : Unit 2:Logic Gates, boolean algebra: Practicals: 1. Study of Transistor characteristics(CE) config.. 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. Fundamental theorems of Boolean algebra. Standard representation of logic functions (SOP and POS), Arithmetic Circuits: Binary Addition. Half and Full Adder. Half and Full Subtractor, 4-bit binary Adder/Subtractor.
8	32	40		
Month : September 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	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. Study of 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.
8	32	40		
Month : October 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	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 (Truth tables and timing diagrams) Shift Registers: SISO (left shift, right shift), SIPO, PISO, and PIPO Registers (4-bit).
8	32	40		

Dr. Milind S. Patil

VIVEKANAND COLLEGE KOLHAPUR (S) (Empowered Autonomous) ESTD JUNE 1964

Miss [illegible]sai

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DEPARTMENT OF B.SC. COMPUTER SCIENCE (ENTIRE)
VIVEKA[illegible]E, KOLHAPUR

Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2023-24

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-I**

Month: December 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 organization - building the required memory size by using available memory chips, memory address map.
8	32	40		
Month : January 2024			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 asynchronous Counter	Introduction to microprocessors (8, 16, 32 Bits). Pin Diagram and Architecture of 8085. Pin Diagram and Architecture of 8086.
8	32	40		
Month: February 2024			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: March 2024			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		

Dr. Milind S. Patil

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Miss. P. [illegible] Desai

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DEPARTMENT OF B.SC. COMPUTER SCIENCE
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VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)

B. Sc. Computer science Entire

Department of Electronics

Academic Year: 2023-24

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**

<table>
<tr><td colspan="3">Month : July 2023</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">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 (calculation of ripple).</td><td rowspan="2">Decimal, Binary, Octal and Hexadecimal number systems and their inter conversions.BCD code. ASCII code, Binary Arithmetic: Addition, Subtraction by 1's complement and 2's complement method, Representation of signed and unsigned numbers</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
<tr><td colspan="3">Month: August 2023</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">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.</td><td rowspan="2">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: Binary Addition. Half and Full Adder. Half and Full Subtractor, 4-bit binary Adder/Subtractor.</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
<tr><td colspan="3">Month : September 2023</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">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. Study of Porch light control using LDR</td><td rowspan="2">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.</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
</table>

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Month : October 2023			Module/Unit:	Sub-units planned
Lectures	Practical	Total	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
16	80	96		
Month : November 2023				
Lectures	Practical	Total	Module/Unit:	Sub-units planned
08	40	48	Unit 4:Sequential circuits:	Counters- Asynchronous (3 – bit, 4–bit, Decade) Synchronous (3 – bit, 4 – bit) Ring Counter, Johnson counter (Truth tables and timing diagrams)

Dr. P. S. Jadhav

Miss P. M. Dessai

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

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Vivekanand College, Kolhapur (Autonomous)

Department of Electronics

Academic Year: 2023-24

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**

<table>
<tr><td colspan="3">Month: November 2023</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">Lecture: Unit 1: Memory devices and memory Organization
Practical:
1. Study of Basic gates.
2. Universal building block using NAND and NOR gates.</td><td rowspan="2">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.</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
<tr><td colspan="3">Month : December 2023</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture : Unit 2: Introduction to Microprocessor
1. Study of Half & full adder
2. Study of Half & full subtractor.</td><td rowspan="2">Introduction to microprocessors (8, 16, 32 Bits). Pin Diagram</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
<tr><td colspan="3">Month: January 2024</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Lecture : Unit 2: Introduction to Microprocessor
1. Verification of De-Morgan's Theorems
2. Study of Flip Flops:</td><td rowspan="2">Architecture of 8085. Pin Diagram and Architecture of 8086.</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
<tr><td colspan="3">Month: February 2024</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Unit 3: Instruction Set of 8085 Microprocessor
1. Study of Decimal to BCD Encoder.
2. Study of BCD to Seven segment Decoder</td><td rowspan="2">Instruction format, Arithmetic group of Instructions, Logical Group of Instructions</td></tr>
<tr><td>16</td><td>80</td><td>96</td></tr>
<tr><td colspan="3">Month: March 2024</td><td>Module/Unit:</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td>Unit 3: Instruction Set of 8085</td><td>Branch Control Instruction</td></tr>
</table>

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

16	80	96	Microprocessor Practicals 1. Arithmetic Operation using uP8085 – I. 1. Arithmetic Operation using uP8085 – II.	and machine related instruction
Month: April 2024			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 4: Programming with 8085 Micro-processor Practicals: 2. Study of Multiplexer and De-Multiplexer. 3. Study of 3 bit asynchronous Counter	Assembly Language Programs (ALP) for Addition, Subtraction, Multiplication
16	80	96		
Month: May 2024			Module/Unit:	Sub-units planned
Lectures	Practical	Total	Unit 4: Programming with 8085 Micro-processor Practical: 1. Block transfer using uP8085. Block Exchange using uP8085	Division, Data transfer, Block Transfer
16	80	96		

Dr. P. S. Jadhav

Miss. P. M. Dessai

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VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Vivekanand College, Kolhapur (Autonomous)

Department of B.Sc. Computer Science Entire

Academic Year: 2023-24

Teaching Plan

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

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

Subject: Electronics Course Title: Analog Electronics

Month : July 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 1:Basic Circuit Elements**	*Resistors*: Classification, colour code, specifications of resistors, etc. *Capacitors*: Definition, Capacitance, classification of capacitors, *Inductors*: - Definition, symbol, Inductance, Inductive reactance (XL), Types of Inductors: *Transformers*:-Principle and construction of transformer, Types of Transformer: - *Switches*: Explanation using Symbols. *Relay*: - Principle, construction and working of electromagnetic relay, etc.
8	32	40	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: August 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 2: Semiconductor Diodes**	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 resister for LED, Applications- Optocoupler, 7-segment display.
8	32	40	Practicals: GROUP B: 1. Study of Basic gates. 2. Universal building block using NAND and NOR gates. 3. Verification of De-Morgan's Theorems.	

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			4. Study of Half & full adder.	
Month : September 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
8	32	40	**UNIT 3:Bipolar Junction Transistor** 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 α and β, DC load line and Q point, potential divider Biasing, Concept of transistor as an amplifier and transistor as a switch..
Month : October 2023			Module/Unit:	Sub-units planned
8	32	40	**UNIT 4: Amplifiers**: 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, **Cascaded Amplifiers**: Two stage RC, LC, TC and DC Coupled Amplifiers and their Frequency Responses.

Mr. G. B. Jirage

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VIVEKANAND COLLEGE, KOLHAPUR
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Vivekanand College, Kolhapur (Autonomous)

Department of B.Sc. Computer Science Entire

Academic Year: 2023-24

Teaching Plan

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

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

Subject: Electronics Course Title: Instrumentation

Month : December 2023			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 1:Transducers and Sensors**	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), optical sensor (LDR), displacement sensor (LVDT)
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:January 2024			Module/Unit:	Sub-units planned
Lectures	Practicals	Total	**UNIT 2: Signal Conditioning**	Introduction to signal conditioning, Block diagram of Op-Amp, ideal characteristics of Op-Amp, Applications of Op-Amp: Inverting amplifier, Non inverting amplifier, Voltage follower, Adder, Subtractor, Comparator, Three Op-Amp instrumentation amplifier, Introduction to Op-Amp Attenuators, I to V converter, Sample and Hold circuit.
8	32	40	Practicals: GROUP B: 9. Study of Decimal to	

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			BCD Encoder. 10. Study of BCD to Seven segment Decoder 11. Arithmetic Operation using uP8085 – I. 12. Arithmetic Operation using uP8085 – II.	
Month : February 2024			Module/Unit:	Sub-units planned
Lectures	Practicals	Total		
8	32	40	**UNIT 3: Data Converters** 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	Photodiode and LED, Current limiting resister Digital to Analog Converter (DAC): Resistive divider, R-2R ladder, Parameters: (Linearity, resolution, accuracy) Analog to Digital Converter: Types of ADC: Flash, Successive approximation, Parameters of ADC (Linearity, resolution, conversion time, accuracy)
Month : March 2024			Module/Unit:	Sub-units planned
8	32	40	**UNIT 4:Digital Instruments and Data Acquisition** Practicals: GROUP B : 13. Block transfer using uP8085. 14. Block Exchange using uP8085	Introduction, Digital Multimeters, Digital Frequency Meter, Digital Tachometer, Digital pH Meter, Digital Phase Meter, Generalized Data Acquisition System, Data Logger.

Mr. G. B. Jirage

Miss P. M. Dessai

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Vivekanand College, Kolhapur (Autonomous)
B.Sc. Computer Science (Entire)
Academic Year: 2023-2024
Annual Teaching Plan

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

Semester - III
Course Title: Linear Algebra

<table>
<tr><td colspan="3">Month : August 2023</td><td>Module/Unit: I</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">1.Linear Equation and Matrices and Practicals</td><td rowspan="2">1Matrices
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</td></tr>
<tr><td>16</td><td>12</td><td>28</td></tr>
<tr><td colspan="3">Month: September 2023</td><td>Module/Unit: II,III</td><td>Sub-units planned</td></tr>
<tr><td>Lectures</td><td>Practicals</td><td>Total</td><td rowspan="2">2.Eigen values,
Eigen Vectors and
Diagonalization</td><td rowspan="2">1.Eigen values and Eigen vectors
2.Diagonalization
3.Cayley Hamilton theorem
(Statement only) examples</td></tr>
<tr><td>16</td><td>12</td><td>28</td></tr>
<tr><td colspan="3"></td><td>3.Real Vector spaces
and Practicals</td><td>1.Ring, Integral Domain, Field (only Definition)
2. Vector Spaces
3.Subspaces</td></tr>
</table>

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Month : October 2023			Module/Unit: III	Sub-units planned
Lectures	Practicals	Total	3.Real Vector spaces and Practicals	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	12	28		
Month : November 2023			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4.Linear Transformations and Matrices and Practicals	1.Definitions and examples 2 The Kernel and Range of a linear transformation 3 The Matrix of a linear transformation
16	12	28		

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Miss. Snehal Sarjerao Patil

(Name and Signature of Teacher)

Miss Pallavi M. Dessai

(HOD)

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DEPARTMENT OF B.Sc. COMPUTER SCIENCE
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)
B.Sc. Computer Science (Entire)
Academic Year: 2023-2024
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 2024			Module/Unit	Subunits Planed
Lectures	Practical	Total	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.
16	12	28		
Month: February 2024			Module/Unit	Subunits Planed
Lectures	Practical	Total	2.Three dimensional transformations and Practicals	1.Introduction. 2 Three dimensional – Scaling, shearing, rotation,
16	12	28		

				reflection, translation. 3.Multiple transformations. 4.Rotation about – an axis parallel to coordinate axes, an arbitary axis in space. 5. Reflection through – coordinate planes, planes parallel to coordinate planes. 6. Affine and perspective transformations. 7. Orthographic projections. 8. Axonometric projections. 9. Oblique projections.
Month: March 2024			Module/Unit	Subunits Planed
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	12	28		
Month: April 2024			Module/Unit	Subunits Planed
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	12	28		

Miss. Snehal Sarjerao patil

(Name and Signature of Teacher)

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Miss Pallavi M. Dessai

(HOD)

HEAD
DEPARTMENT OF COMPUTER SCIENCE
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur(Empowered Autonomous)
B.Sc. Computer Science (Entire)
Academic Year: 2023-2024
Annual Teaching Plan

Name of Teacher: Tamgave Namrata Suhas

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

Subject: Mathematics | Course Title: Numerical Methods

Month: August 2023			Module/Unit I	Subunits Planed
Lectures	Practical	Total	1. Solution of Non-linear Equations and Practicals	1Introduction 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	12	28		
Month: September 2023			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 (), Backward difference () and Shift operator (E) 3 Elementary results on 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	12	28		
Month: October 2023			Module/Unit III	Subunits Planed

Lectures	Practical	Total	3. Numerical Integration and Practicals	1Introduction of numerical integration 2 General Quadrature formula (with proof) 3 Trapezoidal rule (with proof) and examples 4 Simpson's rd rule (with proof) and examples 5 Simpson's th rule (with proof) and examples
16	12	28		
Month: November 2023			Module/Unit IV	Subunits Planed
Lectures	Practical	Total	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
16	12	28		

Ms. Namrata Suhas Tamgave
Name and Signature of Teacher

(Prof.P.M.Dessai)
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ESTD JUNE 1964

Annual Teaching Plan

Name of Teacher: Tamgave Namrata Suhas

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

Subject: Mathematics Coarse Title: Operations Research

Month: January 2024			Module/Unit: I,II	Sub-units planned
Lectures	Practicals	Total	1. Introduction to Operations Research	1 Basics of operations research 1 Different definitions of operations research 2 Characteristics, scope, limitations of operations research
16	12	28	2 Linear Programming Problem	1 Basics definitions 2 Solution of L.P.P by Simplex method and examples 3 Solution of L.P.P by Big – M method and examples
Month February 2024			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	12	28	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 2024			Module/Unit III	Sub-units planned

Lectures	Practicals	Total	3 Transportation and Assignment problem	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 exampl
16	12	28		
Month : April 2024			Module/Unit: IV	Sub-units planned
Lectures	Practicals	Total	4Theory of Games	1 Basics definitions 2 Saddle point and examples 3 Algebraic method for size game and examples 4 Arithmetic method for size game and examples 5 Principal of dominance, Dominance method and examples 6 Sub-game method for size game and examples 7 Graphical method for size game and examples
16	12	28		

Tamgave

Ms.Namrata Suhas Tamgave
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Vivekanand College, Kolhapur (Autonomous)
B.Sc. Computer Science (Entire)
Academic Year: 2023-2024
Annual Teaching Plan

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

Semester - II
Course Title: Operations Research

<table>
<tr><td colspan="3">Month: January</td><td>Module/Unit :I</td><td>Sub- units Planed</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Introduction to Operations Research</td><td rowspan="2">1) Basics of operations research
2) Different definitions of operations research
3) Characteristics, scope, limitations of operations research</td></tr>
<tr><td>24</td><td>80</td><td>104</td></tr>
<tr><td colspan="3">Month: February</td><td>Module/Unit :II</td><td>Sub- units Planed</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Linear Programming Problem</td><td rowspan="2">1) Basics definitions
2) Solution of L.P.P by Simplex method and examples
3) Definition of Dual Problem and examples</td></tr>
<tr><td>24</td><td>80</td><td>104</td></tr>
<tr><td colspan="3">Month: March</td><td>Module/Unit :III</td><td>Sub- units Planed</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Transportation and Assignment problem</td><td rowspan="2">1) Basics of Transportation problem
2) Initial Solution
3) North – West corner method and examples
4) Matrix minima method and examples
5) Vogel's approximation method and examples
6) MODI method and examples
7) Maximization in transportation problem and examples
8) Unbalanced transportation problem and examples
9) Introduction to Assignment problem
10) Hungarian method and examples
11) Maximization in Assignment problems and examples</td></tr>
<tr><td>24</td><td>80</td><td>104</td></tr>
</table>

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Month: April			Module/Unit :IV	Sub- units Planed
Lectures	Practical	Total	Theory of Games	1) Basics definitions 2) Saddle point and examples 3) Algebraic method for **2 × 2** size game and examples 4) Arithmetic method for **2 × 2** size game and examples
24	80	104		

VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Ms. Shital Dhondiram Chavan
Name and Signature of Teacher

(Prof. P. M. Dessai)
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DEPARTMENT OF B.SC. COMPUTER SCIENCE (ENTIRE)
VIVEKANAND COLLEGE, KOLHAPUR (EMPOWERED AUTONOMOUS)

Vivekanand College, Kolhapur (Autonomous)
B.Sc. Computer Science (Entire)
Academic Year: 2023-2024
Annual Teaching Plan

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

Semester - I
Course Title: Foundational Maths

<table>
<tr><td colspan="3">Month: July</td><td>Module/Unit :I</td><td>Sub- units Planed</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Set and Relations</td><td rowspan="2">1) Basic definition and types of set
2) Functions and types of function
3) Relations and types of relation
4) Equivalence class, Partition of a set</td></tr>
<tr><td>24</td><td>80</td><td>104</td></tr>
<tr><td colspan="3">Month: August</td><td>Module/Unit :II</td><td>Sub- units Planed</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Matrices and linear equations</td><td rowspan="2">1) Matrix and types of matrix
2) Matrix Transformations
3) Linear system
4) Solution of linear system
5) Gaussian Elimination method
6) Gauss-Jordan method .</td></tr>
<tr><td>24</td><td>80</td><td>104</td></tr>
<tr><td colspan="3">Month: September</td><td>Module/Unit :III</td><td>Sub- units Planed</td></tr>
<tr><td>Lectures</td><td>Practical</td><td>Total</td><td rowspan="2">Logic</td><td rowspan="2">1) Statement and types of statements
2) Logical connectives and truth value and Construction of truth table .
3) Statement pattern : Tautology , contingency and Contradiction,
4) Logical equivalence
5) laws of logic with examples.</td></tr>
<tr><td>24</td><td>80</td><td>104</td></tr>
</table>

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Month: October			Module/Unit :IV	Sub- units Planed
Lectures	Practical	Total		
24	80	104	Number theory	1) Introduction 2) Divisibility : Division algorithm (Statement only) 3) Greatest Common Divisor (g.c.d.) and Least Common Multiple (l.c.m) 4) Euclidean algorithm (Statement only) with examples . 5) Fermat's theorem (Statement only), examples .

Ms. Shital Dhondiram Chavan
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VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

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VIVEKANAND COLLEGE, KOLHAPUR
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Annual Teaching Plan Academic year 2023-2024

Semester I Department -Department of Computer Science Entire

Subject - Open Elective 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

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				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 10	Practicals 12	Total 22	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.

Pawar A.A.

Name and Signature of teacher

Mr.PawarA.A.

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ESTD JUNE 1964

Annual Teaching Plan Academic year 2023-2024

Semester I Department -Department of Computer Science Entire

Subject - Open Elective 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				

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

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VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of teacher

Mr.PawarA.A.

Annual Teaching Plan Academic year 2023-2024

Semester I Department -Department of Computer Science Entire

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

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DEPARTMENT OF B.SC. COMPUTER SCIENCE
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VIVEKANAND COLLEGE, KOLHAPUR
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VIVEKANAND COLLEGE KOLHAPUR (Empowered Autonomous) ESTD JUNE 1964

Name and Signature of teacher

Mr.Kumbhr S.K.

Annual Teaching Plan Academic year 2023-2024

Semester I Department -Department of Computer Science Entire

Subject - Open Elective 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

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				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 10	Practicals 12	Total 22	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.

Name and Signature of teacher

Mr.Kumbhr S.K.

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