DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Ambhure D. P **Department:Computer Science**

Program: BCS FY **Subject**: **Computer Science**

Course Code: BCS-101

Paper Title: Basic of Computer Science

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	Introduction to Computer and History	1.1 Definition of Computer 1.2 Basic Computer Organization 1.3 Characteristics of Computer 1.4 Generations of Computer 1.5 Types of Computer:- Microcomputer, Minicomputer, Mainframe Computer, Workstations, Client and Server	All information for computer and types of computer
2	Computer Peripherals & Memory	2.1 Input Devices :- Keyboard, Mouse, Trackball, Joystick, Light pen 2.2 Output Devices :- Monitor, Printer, Projector, Biometric Devices	Input and output device all information and computer memory study

		2.3 Computer Memory :- RAM, ROM, Cache Memor	
3	Storage Devices and Operating System	3.1 Compact Disk, Digital Versatile Disk 3.2 Hard Disk Drive 3.3 USB Flash Drive 3.4 Memory Card 3.5 Definition of operating System 3.6 Types of Operating System 3.7 Disk Operating System 3.8 Windows Operating System 3.9 Linux Operating System	All storage devices information and types of operating system study
4	Introduction to Computer Network & Internet	4.1 Definition of Network 4.2 Types of Network :- LAN,MAN,WAN 4.3 Data Transmission Modes 4.4 OSI Model 4.5 E-Mail 4.6 File Transfer Protocol 4.7 Web Browser 4.8 Types of Web Browser	Network ,Types of network,webbrowser,OSI Model , data tramission study

Specify Course Outcome: Through this paper Student should learn basic principles of computer. The paper is designedto aim at importing basic level of Computer.

Specify Program Outcome:To learn Basic Function of Devices like I/O, HDD etc. To Understand the Fundamental of
Software and Hardware. Understand the Concept of Operating System and Network.

Signature of Teacher

Ambhure D. P.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P. **Department:** Computer Science

Program: BCS FY **Subject**: Computer Science

Course Code: BCS-102

Paper Title: Introduction to Programming Language Using C (Part 1)

Unit Number	**Unit Name**	**Topics**	**Unit-wise Outcome**
Unit 1	Programming languages	Machine language Assembly language High level languages Compilers and Interpreters	Language study
Unit 2	Introduction to Programming in C	History, Application Areas Algorithms, Flowcharts Structure of a C program C Tokens and Statement Unformatted I/O Statement	C overview
Unit 3	Controlling Statement	Decision Making Statement If Statement If- else Statement Nested if –else Statement Else if Ladder Statement Switch Statement. Loop Statement For Loop While Loop Do-while Loop	Statements overview Study of If Statement If- else Statement Nested if –else Statement Else if Ladder Statement Switch Statement. loops,else,while, While Loop

		Nested for Loop Break, goto and Continue	Do-while Loop Nested for Loop Break, goto and Continue
Unit 4	Array and Structure	Arrays Array declaration, initialization One dimensional Array Two dimensional Array Passing arrays to functions	Array overview

Specify Course Outcome: It is general purpose and procedure oriented programming language. In which we are able to develop OS and MAC operating system, application software and programming languages. Programming Language are also used to build students logic
for programming

Specify Program Outcome: understanding structure of programming languages, structure of c program.
Understanding different keyword for making program.
Analyzing programs using operators and control statement.
To describe an array.
Student are able to develop application software.

Signature of Teacher

Waghmare V. P.

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Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Khairajani S.U. **Department:** Computer Science

Program: BCS FY **Subject**: Computer Science

Course Code: BCS-103

Paper Title: Web Technology

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Introduction of HTML Documents	Historical Roots of HTML, Web page, Website, Structure of HTML documents and Basic Tags: HTML, HEAD, TITLE, BODY Formatting Tags: Paragraph Tags, List tags, HR Tag. Headings Tags, PRE tag, DIV tag, SPAN tag. FONT Tag, ADDRESS tag, MARQUEE tag. Text-Level Elements & other different formatting tags	Understand the structure of HTML and formatting tags.
Unit 2	Technologies for Web Application	WWW, Web browser. U.R.L. concept. Web server, Web protocols: HTTP, FTP, Telnet. Hyperlink (Anchor) Tag & it's all attributes, Creating Email Hyperlinks (using mail to anchor) The Role of Images on the Web, tag & it's all attributes, Using Images as links. Tables in	Understand the browser, server, protocols and use of table tag.

		HTML:- TABLE, TR, TH, TD tag with example, table with all Attributes	
Unit 3	Basic Interactivity and DHTML	Frames in HTML: FRAMESET & FRAME tags & its attributes Simple Frame Example. Forms in HTML: Introduction to forms. FORM element & it's attributes (Action, Method (GET, POST), Name) Form controls: Text Controls, Password Field, Multiline Text Input, 1. Pull-Down Menus, Check Box, Radio Buttons, Scrolled List, 2. Reset Button and Submit button. Introduction of DHTML, Ramifications of DHTML Rollover Buttons.	Understand frame tag and how to create form in HTML and using form elements and it's attributes and form controls.
Unit 4	CSS and Java Script	Introduction to Cascading Style Sheets , Embedded Styles, Inline Styles, Imported/External Styles. Introduction of JAVA Script , Adding script to documents with example. Variables.Input and Output statements of JAVA Script	Understand basic CSS and JavaScript.

Specify Course Outcome:
students should be able to: Design and implement dynamic websites with good aesthetic sense of designing.

Specify Program Outcome:
To improve the skill to create the static web page.

To develop the ability to create the dynamic web pages.

To enhance the ability of Insert a graphic within a web page.

To improve the skills to Create, validate and publish a web page.

Signature of Teacher

Khairajani S.U.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Khairajani. S. U. **Department:** Computer Science

Program: BCS FY **Subject**: Computer Science

Course Code: BCS-104 A

Paper Title: Office Automation

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Introduction to MS-Word.	Word 2010 Basics: - Opening screen of MS-word, Home menu- font tab, Paragraph tab, Styles tab, Editing options in MS-Word ,Insert menu- table tool ,Header and Footer tool , Mail-merge, Custom dictionary , Printing in MS-Word ,Creating Index in MS-Word.	**student will be able to understand the computer software, hardware, made available to simplify and automate a variety of office operations such as data processing, data manipulating and data presentation with various application those are presents in Microsoft office tools packages**
Unit 2	Working with MS-Excel.	Introduction to MS-Excel Formatting cells, Formatting columns, Row height , Merging ,Splitting columns and connecting the worksheets,	**student will be able to understand the computer software, hardware, made available to simplify and automate a**

		Working with Formulas and Functions ,Creating charts ,Goal seek, Data validation,Conditional Formatting.	**variety of office operations such as data processing, data manipulating and data presentation with various application those are presents in Microsoft office tools packages**
Unit 3	Working with Microsoft power point.	Opening Screen of MS PowerPoint Creating a new presentation based on template , Design template and blank presentation, Slide Transition,Custom Animation effects,Slide show ,Adding audio and video on slides.	**student will be able to understand the computer software, hardware, made available to simplify and automate a variety of office operations such as data processing, data manipulating and data presentation with various application those are presents in Microsoft office tools packages**
Unit 4	Introduction to MS-Access.	Opening screen of MS-Access ,Advantages and disadvantages of MS-Access , Performing Queries ,Generating the report ,Creating the database in Access ,Creating forms and adding new records in MS-Access.	**student will be able to understand the computer software, hardware, made available to simplify and automate a variety of office operations such as data processing, data manipulating and data presentation with various application those are presents in Microsoft office tools packages**

Specify Course Outcome:

After completion of this course student will be able to understand the computer software, hardware, made available to simplify and automate a variety of office operations such as data processing, data manipulating and data presentation with various application those are presents in Microsoft office tools packages.

Specify Program Outcome:

The main objective of Office Automation is to enhance and upgrade the existing system by increasing its efficiency and effectiveness. It will simplify the task and reduce the paper work means the software improves the working methods by replacing the existing manual system with the computer-based system.

Signature of Teacher

Khairajani. S. U.

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College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Thite S. M. **Department: Comp. Sci**

Program: BCS FY **Subject**: **Course Code**: BCS.105.B

Paper Title: Communication Skills-I

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	**Basic English grammer**	Word classes: Open Word Classes & Close Word Classes , Word Formation Process; Word analysis, Phrases: NP, VP, AdjP, AdvP, PrepP, Clauses: Clause Elements, Basic Structure, Sentences: Complex & Compound	**Proper use of basic English grammer for communication.**
2	**Grammar- it's Usage**	Tenses: Present, Past, Future, Voice: Active & Passive, Speech: Direct & Indirect, Common Errors in English, Transformation of Sentences	**Understand usage of grammar in tenses, voice, direct, indirect speech.**
2	**Communication Skill & Soft Skills**	Communication Skills: Definition & Concept, Process /cycle of Communication, Types/Methods of Communication, Barriers of Communication, Soft Skills: Concept, Negotiation skills, Empathy, Manners & Etiquettes.	**Understands the concept of communication skills and soft skills.**
3	**Language Skills**	Language: Definition & its Characteristics.Listening Skill: Process and types. Speaking Skill: Process, style. Reading skill :	**Understand the language skills, listening skills,**

		Process , Reading comprehension passage. Writing Skill : Process & importance	**reading skills and writing skills.**
4	**Presentation skills**	Seminars Conference Anchoring & Vote of Thanks Narrating Incidents Story Telling	**Understand skills for presentation.**

Specify Course Outcome: Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts. Use technology to communicate effectively in various settings and contexts.Demonstrate appropriate and professional ethical behavior.

Specify Program Outcome:

Understand and demonstrate Basic English usages for their different purposes.

Clear entrance examination and aptitude tests.

Write various letters, reports required for professional life.

Signature of Teacher

Thite S. M.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Khairajani. S. U. **Department:** Computer Science

Program: BCS FY **Subject**: Computer Science

Course Code: BCS-106

Paper Title: Lab-Course : C Programming part-1

Sr. Number	Title of program	**Program-wise Outcome**
1	Program to demonstrate Basic structure of C Programming	Students learn how to implement c programs
2	Program to demonstrate Data Types	Students learn how to implements Data Types
3	Program to demonstrate Operators	Students learn how to use Operators
4	Program to demonstrate I/O Statement	Student learn how to use I/O Statement
5	Program to demonstrate Decision Making statement	Understand Decision Making statement

6	Program to demonstrate Looping Statement	Understand Looping Statement
7	Program to demonstrate Break, Continue, goto statement	Learn table making using goto statement
8	Program to demonstrate Array	Learn using array

Specify Course Outcome: students learn how to use c language

Specify Program Outcome: understand implementing c programs

Signature of Teacher

Waghmare V.P.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Khairajani. S. U. **Department:** Computer Science

Program: BCS FY **Subject**: Computer Science

Course Code: BCS-107

Paper Title: Lab-Course : Web Technology and Office Automation

Sr. Number	Title of program	**Program-wise Outcome**
1	Study of Word Opening screen	Students learn how to use word
2	Study of EXCEL Opening screen	Students learn how to use excel
3	Study of PowerPoint Opening screen	Students learn how to use power point
4	Study of Access Opening screen	Student learn how to use
5	Study of Find and Replace Dialog Box in Microsoft Word	Understand replace dialogue box
6	Study of Page Setup Dialog Box	Understand page setup dialog box
7	Study of Table Formatting	Learn table formatting

8	Study of Custom Dictionary & Go to Dialog Box	Learn using dictionary
9	Study of mail merge	Understand mail merge
10	Study of creating charts.	Students learn creating charts
11	Study of border and shading dialog box	Understand shading dialog box
12	Study of paragraph dialog box	Learn paragraph dialog box
13	Working of Formulas in Excel	Understand formulas
14	Creating Presentation in Power Point	Learn making slides
15	Creating database file in Access	Learn database

Specify Course Outcome: students learn how to using ms - office

Specify Program Outcome: understand word,ppt,excel and ms access

Signature of Teacher

Khairajani. S. U.

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College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Ambhure D. P **Department: Computer Science**

Program: BCS FY **Subject**: COMPUTER SCIENCE **Course Code**: BCS - 201

Paper Title: OPERATING SYSTEM

Unit Number	Unit Name	Topics	Unit-wise Outcome
UNIT – I	**Introduction**	What Operating System Do – 1) User View 2) System View 3) Defining OS, Computer System Organization, What Operating System Do – 1) User View 2) System View 3) Defining OS, Computer System Organization, Extended Machine Concept, Operating System Structure, An Operating System Resource Manager	**To introduce basic concepts and functions of modern operating systems.**
UNIT – II	**System Structure**	Operating System Services, User Operating System Interface 1) Command Interpreter 2) GUI, System Boot, System Calls, Types of System Calls 1) Process Control 2) File Management 3) Device Management 4) Information Maintenance 5) Communication	**To understand about OS services and system calls.**

		6) Protection	
UNIT – III	**Processor Management**	Process Concept 1) The Process 2) Process States 3) Process Control Block Process Scheduling 1) Scheduling Queues 2) Schedulers 3) Context Switching, Scheduling Algorithms 1) FCFS 2) SJF 3) Priority Scheduling 4) Round-Robin Scheduling.	**To understand the scheduling of processes and threads.**
UNIT - IV	**Memory Management**	Introduction, Contiguous Memory Allocation 1) Memory Allocation 2) Fragmentation Paging 1) Basic Method 2) Hardware Support Segmentation 1) Basic Method 2) Hardware Support.	**To understand various Memory Management techniques.**

Specify Course Outcome: Fundamental understanding of the role of Operating Systems.

Specify Program Outcome: Apply knowledge of mathematics, science and algorithm in solving Computer problems. Actual hands on technology to understand it's working.

Signature of Teacher

Ambhure D. P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V.P. **Department: Computer science**

Program: Bcs Fy **Subject**: computer science

Course Code: BCS-202

Paper Title: Introduction to Programming Language Using C Part – 2

Unit Number	Unit Name	Topics	Unit-wise Outcome
UNIT I	Function in C	Functions in C , What is a function? , User defined functions , Declaration , Definition ,Function calling , Types of Function ,Recursion , Standard String library functions , Storage Classes	students can understand implementing functions.
UNIT II	Pointers	What is Pointer? Pointer declaration, initialization ,Dereferencing pointers , Pointer to pointer , Arrays and pointers, Functions and pointers ,Pointer to function ,Dynamic memory allocation , Command Line Argument	Students can learn pointer and array implimentation
UNIT III	Structures and Unions	Creating structures , Accessing structure members (dot Operator) , Array of structures	Students can understand pointers and union implementation

		,Nested structures , Pointers and structures , Union	
UNIT IV	File Handling	What is File? Creating File ,Types of File ,Operation on File ,Random Access to File	Students implements files.

Specify Course Outcome: the course will be basic of c

Specify Program Outcome: learn and implements c language programs

Signature of Teacher

Waghmare V.P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil Mohiuddin **Department:Computer Science**

Program: BCS FY **Subject**: **Computer Science**

Course Code: BCS-203

Paper Title: Database Management System

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	DBMS Concepts	1.1 What is Database? 1.2 Database Management System (DBMS) 1.3 Architecture of DBMS – Three level 1.4 Structure of DBMS 1.5 Entity, Attributes, type of relationships, 1.6 DBMS users 1.7 DBMS Facilities 1.8 Advantages and Disadvantages of DBMS 1.9 Data Models 1.10 Database Languages (DDL, DML, DCL, DQL, TCL)	Introdution for DBMS and database languages
2	Database System architectures	2.1 Centralized & Client Server Architectures a. Centralized Systems b. Client-Server Systems 2.2 Server System Architectures a. Transaction Server b. Data Server 2.3 Parallel Systems a. Speedup & Scale up b. Parallel Database Architectures i. Shared Memory ii. Shared Disk	Database System architectures details study

		iii. Shared Nothing iv. Hierarchical 2.4 Distributed Systems a. An Example of Distributed Database	
3	Database Design & the ER Model	3.1 Overview of the Design Process a. Design Phases 3.2 The Entity-Relationship Model a. Entity Sets b. Relationship Sets c. Attributes 3.3 Constraints a. Mapping Cardinalities b. Keys i. Entity Sets ii. Relationship Sets iii. Participation Constraints 3.4 Entity Relationship Diagrams	All design and ER model study
4	Introduction to SQL	4.1 Background 4.2 Basic Data types in SQL 4.3 Types of SQL Commands (DDL, DML, DCL, DQL, TCL) 4.4 Basic Structure of SQL Queries 4.5 Table Creation, Data insertion, Data Updating, Data Selection 4.6 Changing Table Structure, 4.7 WHERE Clause, DISTINCT Clause, Using Column Aliases 4.8 Working with Views a. Creating View on Tables b. Creating View on Views c. Updating Views d. Altering Views 4.9 SQL Functions a. Single Row Functions (Character Functions, Case Manipulation, Character Manipulation Number Functions, Date Functions, Conversion Functions) b. Multiple Row Functions	Introduction to SQL and SQL Commands

Specify Course Outcome: To have basic understanding of database management system components**.**

Specify Program Outcome: students will be able to think of ER modelling and creation of own database schema.

Signature of Teacher:

Khaja M. M.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Surnar S. B **Department: Computer science**

Program: Bcs Fy **Subject**: computer science

Course Code: BCS-204 B

Paper Title: Elective : Desktop Publishing (DTP)

Unit Number	Unit Name	Topics	Unit-wise Outcome
UNIT I	PAGEMAKER	PAGEMAKER BASICS, StartingPageMaker.,PageMaker Window Elements,Viewing the Page,Toolbox,Using the Zoom Tool.	Build personal documents such as business cards and resumes.
UNIT II	WORKING WITH A PUBLICATION	Working With A Publication,Opening a Publication,Creating a New Document,Setting the Margins,Setting the Page Size,Setting the Page Orientation,The Page Icons. ,Displaying Master Pages and Master Page Items.,Inserting and Removing Pages, Inserting a Page, Removing a Page,Setting Page Numbers.,Saving a New Document.	Build business documents such as flyers and advertisements

UNIT III	INTRODUCTION TO ADOBE PHOTOSHOP	Basic Features of Adobe Photoshop,Various Page Mesurments, Use Of Various Tools, Layer Concepts, Basic Of Type, Control Settings & Placements.	Build a newsletter with graphics and draw objects
UNIT IV	IMAGE EDITING WITH ADOBE PHOTOSHOP	Images Contrast, Tonning & Colour Correction, Colour Conversions, Cleaning, Repairing & Altering Images, Shadow, Relection & Dimention, Creating Background, Patterns, Brushes, Texture & Frames, Types Effects, Freehand.	Build document with using image editing

Specify Course Outcome: the course will be basic page layout and design principles and integrating text and graphics to create attractive business publications.

Specify Program Outcome: This course will provide students the opportunity to learn to use basic features of desktop publishing software to create all types of publications: flyers, brochures, newsletters, and advertisements

Signature of Teacher

Surnar S. B.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Thite S. M.. **Department: Comp. Sci**

Program: BCS FY SEM II **Subject**:Comp Sci

Course Code: BCS.205.B **Paper Title: Communication Skill-II**

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	Phonetics: Study of Speech Sounds	Phonemes: Consonants (24) Vowels (20), Stress; Three Term Label, Intonation, Word Transcription, Sentence Transcription.	Understand Phonemes
2	Soft Skills	Soft Skills: Leadership Skills, Soft Skills: Time management, Soft Skills: Stress management, Conflict Management, Meditation	Understand soft skills
3	Career Skills	Group Discussion, Personal Employment Interview, Telephonic Etiquettes & Interview, Report Writing: Formal & Informal Report Writing, Meetings.	Understand career skills
4	Creative Writing & Situational English	Creative writing: Narrating a situation, Situational English: Greetings, Introducing, Inviting, Thanking, Enquiring, Complimenting, Complaining etc.	Understand how to narrating a situation, greetings, thanking and formal letters

		Note Making & Note Taking , Dialogue writing, Formal Letters Writing: Job Application, Curriculum Vitae, Supply Orders,Complaint letters.	

Specify Course Outcome: Students will be able to understand and apply knowledge of human communication and language processes as they occur across various contexts. Use technology to communicate effectively in various settings and contexts.

Specify Program Outcome: Learning the basic grammer for proper communication. To enhance effective communication and interpersonal skills.

Signature of Teacher

Thite S. M.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V.P. **Department: Computer Science**

Program: Bcs FY **Subject**: Computer Application
Course Code: BCS-206

Paper Title:C Programming (Part – 2)

No.	Topics	Outcome
1	Program to demonstrate Function in C	Learn c programming advance concepts
2	Program to demonstrate recursion	
3	Program to demonstrate String Library function	
4	Program to demonstrate Pointer	
5	Program to demonstrate Dynamic Memory Allocation	
6	Program to demonstrate Command Line Argument	
7	Program to demonstrate creating structure	
8	. Program to demonstrate Union.	
9	Program to demonstrate File Handling	
10	. Program to demonstrate Random access to file	

Specify Course Outcome:

- Students can learn how to implement structure,function and file handling using c language.

Specify Program Outcome:

- Students implementin functions and random access fie .

Signature of Teacher

Waghmare V.P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Surnar S. B. **Department: Computer Science**

Program: Bcs FY **Subject**: Computer Science
Course Code: BCS-207

Paper Title: Lab-Course : DBMS and DTP

No.	Topics	Outcome
1	Draw an opening Screen of PageMaker	desktop publishing software to create all types of publications: flyers, brochures, newsletters, and advertisements
2	Draw a toolbox in PageMaker.	
3	Draw Document Setting Dialog box	
4	Write Steps for creating new Document.	
5	Create Visiting Card in PageMaker	
6	Create Letter Head in PageMaker	
7	Draw an opening Screen of Photoshop.	
8	. Write Step for Create New Document in Photoshop.	
9	Creating Your Artwork in Photoshop	
10	. Change color Pattern of Image in Photoshop	
11	To Crop the image in Photoshop	

Specify Course Outcome:

- desktop publishing software to create all types of publications: flyers, brochures, newsletters, and advertisements. Included in the course will be basic page layout and design principles and integrating text and graphics to create attractive business publications.

Specify Program Outcome:

- Create personal documents such as business cards and resumes..
- Create business documents such as flyers and advertisements.
- Create a newsletter with graphics and draw objects..
- Create a course project illustrating Desktop Publishing techniques..

Signature of Teacher

Surnar S. B.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil Mohiuddin **Department: Computer Science**

Program: BCS SY **Subject**: COMPUTER SCIENCE **Course Code**: BCS-301

Paper Title: Object Oriented Concept Using C++

Unit Number	Unit Name	Topics	Unit-wise Outcome
UNIT – I	**Introduction to OOPs**	Object Oriented Programming, Basic concepts of OOPS, Benefits of OOPs	Understand the concepts of Object Oriented Programming.
UNIT – II	**Introduction to C++**	Tokens Identifiers Keywords, Constant variable data types, Scope Resolution Operator, I/O statements Structure of C++ program, Control statements Looping, Type casting · Arrays, Pointer, References, Structure and Unions, Function: Call by value, Call by reference, Inline function, Default arguments, Function Overloading	Design, implement, test and debug programs that use arrays, pointer, control structure and overloading in OOPs
UNIT – III	**Class and Objects**	Define Class, Members Object, Visibility modes, Static members, Pointer to members, Pointer to objects, Constructors & Destructors, Friend Function	Implementation of Class and Object

UNIT - IV	**Operator Overloading and Type Conversions**	Concept of Operator Overloading, Unary & Binary operator overloading, Rules for Overloading, Type conversions – Basic to Class, Class to basic Class to Class	Understanding the operator overloading and data type conversion.
UNIT – V	**Inheritance and Polymorphism**	Concept of Inheritance, Types of Inheritance, Polymorphism, Virtual Base Classes, Pointer to Derived class, Virtual functions, Rules for Virtual function, Pure Virtual functions	Design and implementation of programs through inheriting data from one class to another class.
UNIT – VI	**C++ I/O System**	C++ Streams Stream classes, Unformatted I/O operations, Formatted I/O operations, Manipulators, Opening and closing file, file modes, Updating file	Understanding basic I/O stream and file handling

Specify Course Outcome: To understand how C++ improve C with Object Oriented features.

Specify Program Outcome: To improve programming language and logic to solve problem.

Signature of Teacher

SHAIKH KHAJA MOHIUDDIN

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P. **Department:** Computer Science

Program: BCS SY. **Subject**: Computer Science

Course Code: BCS-302

Paper Title: Computer Network

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Introduction to Computer Networks	Definition & Applications of Computer Network Basic Concepts Signals, Types – Analog and Digital Signals Network topologies- star, bus, mesh, ringData Transmission MediaNetwork Types LAN, MAN, WANConnection Oriented & Connectionless services	Understand about computer network and basic concepts of signals, network topologies and network type.
Unit 2	Network Models &Services	Protocol Hierarchies Design issues for layers Connection Oriented & Connectionless services Service Primitives - listen, connect, receive, send, disconnectNetwork Models –	Understand protocol hierarchies, connection oriented and connectionless services and network models

		OSI/ISO Reference Model & TCP/IP Model	
Unit 3	Network Architecture & Hardware	Protocol stack design issues of the layers -addressing, error control, flow control, multiplexing and demultiplexing , RoutingNetwork Devices - NIC Cards, Hub, Switch, Bridges, Gateways, Repeaters Router.	Understand network devices.
Unit 4	Multiplexing and Switching	Concept of modulation and their application Multiplexing – Time division and Frequency division Switching - Circuit Switching ,Packet Switching ,Message SwitchingTransmission Modes-Parallel Transmission, Serial Transmission – Asynchrounous and Synchrouous	Understand multiplexing, switching and transmission mode.
Unit 5	Network Standards and Network protocols	Network Standards – Ethernet, Fast Ethernet, Gigabyte Ethernet, 10Base5, 10Base2, 10BaseT, 10Base-F Network Protocols- IP protocol, SMTP, PPP, FTP, HTTP, SNMP IP-addresses , sliding window protocols, Pipelining.	Understand ethernet, network protocols and ip addresses.
Unit 6	Internet	Internet verses Intrane Internet Service ProvidersE-mail – Architecture and Services WWW-Client side and Server side ISDN Architecture, PBX, FDDI.	Understand ISP,WWW, ISDN architecture.

Specify Course Outcome:

- Understand basic computer network technology.
- Students can identify the different types of network topologies and protocols.
- Students can Identify the different types of network standards

Program Outcome:

- Introduction fundamental concepts of computer networking.
- Introduce students with various concepts used in network
- Introduce various technologies and standards
- Allow the student to gain expertise in areas of networking

Signature of Teacher

Waghmare V. P.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Patode S.S **Department:** Computer Science

Program: BCS SY **Subject**: Computer Science

Course Code: BCS-303

Paper Title: Data Structure and Algorithm

Unit Number	**Unit Name**	**Topics**	Unit-wise Outcome
Unit 1	**Introduction**	Introduction , Basic terminology, elementary data organization,Data structure ,Data structure operation , Algorithm complexity	Understand the concept of Dynamic memory management, data types, algorithms, Big O notation.
Unit 2	**Array, Records and Pointers**	Linear array,Representation of linear array in memory,Traversing linear array, Inserting and Deleting , Searching methods (Binary and linear search), Sorting Method (selection sort, bubble sort and Insertion sort)	Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data
Unit 3	**Linked List**	Introduction, Linked list , Representation of Linked list in memory ,Searching a linked list ,Memory allocation, Garbage collection, insertion & Deletion into Linked List, Two way Linked List	Understand basic data structures such as arrays, linked lists .
Unit 4	**Stack**	Introduction,stack,Representation of stack (sequential & linked) , Push & pop operation ,Arithmetic expression ,Infix, postfix & prefix ,Evaluation of	Understand basic data structures such as stack .

		postfix expression ,Recursion :factorial, Fibonacci	
Unit 5	**Queue**	Introduction, Queues ,Memory Representation of Queue.(sequential & linked),Insertion & Deletion on Queue. D-queue, Priority Queue	Understand basic data structures such queues.
Unit 6	**Tree & graph**	Binary Tree, Types of Binary tree ,Traversing of binary tree(pre-order, post-order, inorder), Header Nodes, Threads , Graph,Representation of graph, Operations on graph	Solve problem involving graphs, trees and heaps

Specify Course Outcome: Students develop knowledge of applications of data structures including the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.

Specify Program Outcome: Students implement projects requiring the implementation of the above data structures.

Signature of Teacher

Patode S. S.

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shejul B. V. **Department:** Computer Science

Program: BCS SY **Subject**: Computer Science

Course Code: BCS-304

Paper Title: MTCS

Unit Number	**Unit Name**	**Topics**	**Unit-wise Outcome**
Unit 1	Set theory	Definition & types of set ,Venn diagram ,Set operation .Properties of sets ,Numerical example	Learn set and its types,operation and venn diagram
Unit 2	Arithmetical ability	Numbers, Asthmatic progression & Geometric progression ,Divisibility tests ,H.C.F.and L.C.M. of numbers ,Time, Work and distance.	Understand progression & its types,HCF & LCM & Problems on time ,work and distance
Unit 3	Matrix	Matric & types ,Algebra & Matrices ,Definition of determinants ,Adjoint of matrix ,Inverse of matrix	Utilize matrix & its types,determinants , adjoint and inverse of matrix
Unit 4	Graph theory	Definition & types of groups ,Degree of vertices ,Isomorphism graph ,Walks, paths & circuits Subgraph	Understand graghs and its types,isomorphism graph and walks,paths & circuits
Unit 5	Probability	Introduction ,Sample space,Event and type, Definition of probability , Examples on probability	Learn sampe,space & probability and its examples

Unit 6	Relation	Introduction ,Relation on set ,Types of relation ,Operation on set, Properties of relatiom	Utilize realation and its types ,operation on set & properties of relation

Specify Course Outcome: Able to use standard mathematical techniques to solve elementary problem.
• Understand the nature of mathematical proof & be able to write clear & concise proof.

Specify Program Outcome: Knowledge, skill & understanding develop understanding & fluency in mathematics through inquiry, exploring & connecting mathematical concept choosing & applying problem – solving skills.

Signature of Teacher

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Dantpalle K. K. **Department:** Computer science

Program: BCS SY **Subject**: Computer science

Course Code: BCS-305 **Paper Title:** Numerical Aptitude

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	**Introduction of Number system**	Numbers: Types of numbers,Divisibility tests of numbers,Geometric progression, arithmetic progression, Relationship between Arithmetic progression andGeometric progression ,HCF and LCM : Methods of calculating highest common factor and greatest common divisor, factorization method, Division method, Finding HCF and LCM more than two Numbers, LCM and HCF of fractions and decimal numbers, Applications of LCM and HCF.	Study the number system and how to calculate HCF and LCM
2	**Average, Problem on ages, Percentage, and Profit and Loss**	Average: Definition of average, Formulae and theoretical problem on average. Problem on ages: simultaneous equations and their applications Theoretical problems on ages, Theoretical problems on numbers. Percentage: Concept of percentage, Application of percentage, Results on populations, Result on depreciations,	Study the average percentage and profit and loss

		Theoretical problem on percentage ,Profit and Loss: Definition of cost price, selling price and profit, Formulae of profit and loss, Theoretical problems on profit and loss.	
3	**Percentage,**	Percentage: Concept of percentage, Application of percentage, Results on populations, Result on depreciations, Theoretical problem on percentage	Understanding the problem of percentage
4	**Time and Work, Time and Distance and Problems on Train**	Time and Work: Concept of time and work, Relationship between time and work, Theoretical problems on time and workTime and Distance: Concept of time and distance, Formulae of time and distance, Theoretical problems on time and distance. Problems on Train: Formulae of problems on train,Theoretical problems on train.	Study the theoretical problem on time and work, time and distance.
5	**Boat andstreams, Allegations and Mixtures, and Calendar**	Boat and streams: Concept of boat and streams, Formulae of boat and streams, Allegations and Mixtures: Definition of allegation and mixtures, Rules of allegation's, Theoretical problems on mixture and allegation. Calendar: Concept of odd days, Leap years and	Study the concept of boat and streams allegation, theoretical problems on this topic

		ordinary years, Problems on Calendar.	
6	**Simple and Compound Interest**, **Probability**, **and Permutations and combinations**	Simple and Compound Interest: Definition of simple and Compound interest, Formulae of simple and compound interest, Relationship between simple and compound interest, Theoretical problems on simple and compound interest. Probability: Definition of probability, Examples of performing a randome xperiment,Probability of occurrence of an event, Results on probability, Theoretical problems on probability. Permutations andcombinations:Definition of permutations and combinations, Formulae of permutation and combinations, Relationship between permutation and combinations, Problems on permutations and combinations.	To understand the concept of interest and compound interest and theoretical problem on this unit. Similarly study of permutation and combination.

Specify Course Outcome: calculating the equation and to solve the problems simple interest, compound interest, average this all calculation are performing.

Specify Program Outcome: implement the all equation in comparative exams and also use the set,net, Banking exams.

Signature of Teacher

Dantpalle K. K.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil Mohiuddin **Department: Computer Science**

Program: BCS SY **Subject**: COMPUTER SCIENCE **Course Code**: Lab BCS-306

Paper Title: Object Oriented Concept using C++

Unit Number	Unit Name	Topics	Unit-wise Outcome
		Program to demonstrate Constant Variable. Program to demonstrate scope of Variable Program to demonstrate branching statement Program to demonstrate Looping statement Program to demonstrate simple class Program to demonstrate method parameter Program to demonstrate call by value. Program to demonstrate call by reference. Program to demonstrate pointer to object. Program to demonstrate function in c++ Program to demonstrate factorial number using for loop. Program to demonstrate fibonacci sequence. Program to demonstrate sum of even or odd number. Program to demonstrate find area of circle. Program to demonstrate arithmetic operation using switch case. Program to demonstrate method overloading	Solve problem using Object Oriented Programming Concepts

		Program to demonstrate constructor Program to demonstrate destructor. Program to demonstrate static member Program to demonstrate Method overriding Program to demonstrate Final variable, Method and Final Class. Program to demonstrate Finilize method() Program to demonstrate Array and It's types. Program to demonstrate String class and it's method. Program to demonstrate String Buffer and it's method. Program to demonstrate inheritance and its Types Program to demonstrate Abstract method and Abstract Class. Program to demonstrate Polymorphism. Program to demonstrate Function overloading. Program to demonstrate Operator Overloading.	

Specify Course Outcome: **U**nderstand concept of object oriented programming.

Specify Program Outcome: To developed application software.

Signature of Teacher

SHAIKH KHAJA MOHIUDDIN

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

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e:*Pro-forma for program and course outcomes (2.6.1)*

Name of Teacher: Patode S. S. **Department:** Computer Science

Program: BCS SY **Subject**: Computer Science

Course Code: 307

Paper Title: Lab Course – 2 (Data Structure)

Sr.No.	Topic	
1.	Write a program traversing the array.	Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithm
2.	Write a program to insert the element into array at given position.	
3.	3 Write a program to delete the element from array.	
4.	Write a program to find element in the array using binary search.	
5.	Write a program to sort the array using for bubble sort.	
6.	Write a program to perform insertion sort on array.	
7.	8 Write a program to implement the selection sort on array.	
8.	Write a program to implement stack using linked list.	
9.	Write a program to implement stack using array.	
10.	Write a program to perform push & pop operations on stack.	
11.	Write a program to convert an infix expression into postfix expression.	
12.	Write a program to evaluation of postfix expression using stack.	

Specify Course Outcome: Students develop knowledge of applications of data structures including the ability to implement algorithms for the creation, insertion, deletion, searching, and sorting of each data structure.

Specify Program Outcome: Students implement projects requiring the implementation of the above data structures.

Signature of Teacher

Patode S. S.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P. **Department: Comp. Sci**

Program: BCS SY **SEM IV** **Subject**: Comp. Sci

Course Code: BCS- 401 **Paper Title:** Java programming

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	Introduction	Java history, features, how java differ from c,c++,JVM, java environment, java programming structure, installing java	Understands java environment
2	UNIT-II Overview of Java Language	Introduction, Types of Comment , Java Tokens – Reserve Keywords – Identifiers – Literals – Operators, Variables, final variable, Data Types, Array , Type Casting , Control Statement – Branching statement – Looping statement	To understand how to implement Java token and array.
3	UNIT-III Classes, Objects and Methods	Introduction, Defining Class – Fields Declaration – Methods Declaration – Creating Objects – Visibility Control , Use of 'this' Keyword , Method Parameters , Method Overloading , Constructor and Constructor Overloading , Static Members , Finialize() Method , Inheritance and It's Types ,super Method Overriding , Final Method and Final Class, Abstract Class and Abstract Methods.	Understands use of class in java
4	UNIT-IV Interface, Package and Exception Handling	Defining and implementing interface , Inner Classes ,Package – Create Package – Accessing Package ,Exception – Types of Error –try and catch,Multiple catch statement , Finally clause, Creating User defined Exception,	To understand the importance of java package
5	UNIT-V String and Stream	Introduction ,String Classes ,String Buffer Class , Stream Classes - Types of Streams - Byte Stream Classes - Character Stream Classes,	Understand string and buffer class.
6	UNIT-VI File I/O and JDBC	Creating Files and Directory, Reading and Writing to Files , Date & Times , Regular Expression , Serialization & Deserialization , Introduction to JDBC, Architecture of JDBC, JDBC Drivers,Statement, PreparedStatement,ResultSet,	Understands read and write file , understand java database connectivity.

		ResultSetMetaData, Create,Update and Delete operations.	

Specify Course Outcome:

1. To understand how to design, implement, test, debug, and document programs that use basic data types and computation, simple I/O, conditional and control structures, string handling and functions.
2. To understand the importance of Classes & objects along with constructors, Arrays and Vectors.
3. Discuss the principles of inheritance, interface and packages and demonstrate though problem analysis assignments how they relate to the design of methods, abstract classes and interfaces and packages.
4. To understand importance of Multi-threading & different exception handling mechanisms.
5. To learn experience of designing, implementing, testing, and debugging graphical user interfaces in Java using applet and AWT that respond to different user events.
6. To understand Java Swings for designing GUI applications based on MVC architecture.

Specify Program Outcome:

1. Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.

2. Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem

3. Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.

4. Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.

Signature of Teacher

Waghmare V.P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shejul B. V **Department: Comp. Sci**

Program: BCS SY SEM IV **Subject**: Computer Science

Course Code: BCS - 402 **Paper Title: Soft. Engineering**

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	Introduction to Software Engineering	Evolving role of software, characteristics, application, crisis, horizon and myths	Understand basic information of software
2	Process Of Software	Software engineering, process, the waterfall model, incremental model, evolutionary process model, spiral model	Understands different models for software
3	A Generic View of Process	Software engineering-a technology, process framework, personal and team process model, personal , software process technology, product and process	Learn different things required for software
4	AGILE DEVELOPMENT	What is agility? What is agile process? The politics of agile development, agile process models, feature driven development	Understands agile process
5	Software Engineering Practice	Software engineering practice, the essence of practice, core principle, communication, planning practice, modeling, design modeling principles	Understands different practice modeling of software
6	System Engineering	Computer based system, the system engineering hierarchy, system modeling system simulation	Learn hierarchy nd modeling of software

Specify Course Outcome:

1. Define various software application domains and remember different process model used in software development.

2. Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques.

3. Convert the requirements model into the design model and demonstrate use of software and userinterface design principles.

4. Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them.

5. Justify role of SDLC in Software Project Development and they can evaluate importance of Software Engineering in PLC.

6. Generate project schedule and can construct, design and develop network diagram for different

Specify Program Outcome:

1. Define various software application domains and remember different process model used in software development. 2. Explain needs for software specifications also they can classify different types of software requirements and their gathering techniques. 3. Convert the requirements model into the design model and demonstrate use of software and user interface design principles. 4. Distinguish among SCM and SQA and can classify different testing strategies and tactics and compare them.

Signature of Teacher

Shejul B. V.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil Mohiuddin **Department: Computer Science**

Program: BCS SY **Subject**: COMPUTER SCIENCE **Course Code**:BCS-403

Paper Title: RDBMS

Unit Number	Unit Name	Topics	Unit-wise Outcome

UNIT – I	**Introduction and Basic Concepts**	Structure of DBMS, Advantages and Disadvantages of DBMS, Users of DBMS, Relational Database: Entities, Attributes and Domains,Tuples, Relations and their schemes.	**Understand basic knowledge about database.**
UNIT – II	**SQL Statements & Working With Tables**	What is SQL?, Types of SQL Commands (DDL, DML, DQL, DCL, Transaction Control Commands,Data types in SQL, Creating Tables, Selecting from tables, WHERE Clause, Selecting from tables, DISTINCT Clause, Column aliasing, Manipulation Table data, Altering Table structure, Data Constraints: Unique, Not Null, Primary Key, Foreign Key, Check, Default Constraint	**To insert, update, delete data as well as secure data through constraints**
UNIT – III	**Operators & SQL Functions & Views**	Arithmetic Operators, Relational Operators, Comparison Operators BETWEEN , IN, LIKE, IS NULL, LOGICAL Operators: AND OR NOT, SQL Functions: Single, Multiple Row Functions, Single Row Character , Single Row Number, Single Row Date, Single Row Conversion, Single Row General Functions, Multiple Row Functions, Views	**To perform all about retrieving data from databases using some operators.**
UNIT - IV	**Sorting & Grouping Data and Joining Tables & Subqueries in ORACLE**	What is Sorting?, ORDER BY & ORDER BY DESC Clauses, GROUP BY & GROUP BY HAVING Clauses,What is Join?, Join Styles: Theta , ANSI , Using clause, Types of Joins: Equi Joins, Non Equi Join, Outer Join: Left, Right, Full Self Join Cross Join, Joining three tables,Subqueries & its types	**We can joining, grouping and sorting various data through some commands.**

UNIT – V	**Introduction to PL/SQL**	PL/SQL Overview,Declarations Section,Executable Commands Section,Exception Handling Section	**Execute a program or group of command using pl/sql block**
UNIT – VI	**Database Triggers & Cursors**	What are Triggers? Triggers Syntax,Types of triggers,Row Level Statement Level, Before , After Instead of Triggers,Enabling and Disabling Triggers,Replacing and Dropping Triggers,Working with Cursor,% TYPE Variable % ROWTYPE Variable	**Generating events through triggers and perform task at background.**

Specify Course Outcome: Understand and effectively explain the underlying concepts of RDBMS. Populate and query a database using SQL DML/DDL/DQL/DCL/TCL and database constraints.

Specify Program Outcome: Students are able to prepare some application through java as a front end and RDBMS as backend.

Signature of Teacher

SHAIKH KHAJA MOHIUDDIN

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Thite S. M. **Department: Computer Science**

Program: BCS SY **Subject**: COMPUTER SCIENCE **Course Code**:BCS-404

Paper Title: principle of Compiler Design

Unit Number	Unit Name	Topics	Unit-wise Outcome
UNIT – I	Introduction	Definition of compiler,Compiler and translators,Need of translato,Phases of compiler,Lexical analysis, Syntax analysis ,Intermediate code generation,Optimization,Code generation ,One pass and multi pass compiler ,Cross compiler , Bootstrapping	Understand what is compiler and phases of compiler
UNIT – II	Basic Elements of Programming Language	High level programming languages ,Definition of programming languages,Lexical and syntactic structure of language ,Data elements, Different data structures,Operators , Assignments, Statements	Understand basic elements of programming language
UNIT – III	Lexical analysis and introduction to Finite Automata	Role of lexical analyzer and input buffering ,An approach to design lexical analyzer, Finite automata – NFA and DFA ,Regular Expression,Conversion of regular Expression to Finite automata ,Minimizing the number of states of DFA ,A language specifying lexical analyzer	Understand the role of lexical analyzer, finite autometa
UNIT - IV	Language syntactic specification & parsing techniques	Context free grammar , Parse tree ,Capabilities of context free grammer ,Parsers ,Shift reduce parsing ,Operator precedence parsing,Top down parsing,Predictive parsers,LR parsers	Detect and recover from syntax error and and create parsers for programming language.
UNIT – V	Syntax Directed translation & Intermediate code generation	Syntax directed definitions, Implementation of syntax directed translator, Intermediate code, Postfix notation,	Analyze syntax tree to check semantic correctness and produce platform independent code.

		Evaluation of postfix notation, Parse tree and syntax tree	
UNIT – VI	Introduction to Errors and code optimization	Errors, Lexical base errors, Syntactic phase errors, Semantic errors, Sources of optimization, Loop optimization	Error detection and reporting, Semantic error handling Improved code performance and reduce code size.

Specify Course Outcome:

To understand overall design of compiler with their types and phases.

To understand the basic concept of essential syntactic elements and identifying those elements

Specify Program Outcome:

One can easily construct the recognizer system for language constructs as a input. Understanding context free grammar.

Understanding various parsing techniques and intermediate code.

Signature of Teacher

Thite S. M.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Surnar S. B **Department:** Computer Science

Program: BCS SY. **Subject**: Computer Science

Course Code: BCS 405

Paper Title: Logical Reasoning

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Series, Analogy and Classification	A Series: Types of series, Alphabet series, Alpha numeric series, Examples on continues pattern series. B Analogy: Completing the Analogous Pair, Direct/Simple Analogy, Choosing the Analogous Pair, Double Analogy, Number analogy, Alphabet analogy, Correlation between letters/numbers. C Classification: Choosing the odd word, Choosing the odd numeral, Choosing the odd letter group.	Understand the basic concepts of LOGICAL REASONING Skills
Unit 2	Coding-Decoding		
Unit 3	Blood Relation	A Introduction to relations B Concepts of deciphering relations based problems C Problems on deciphering jumbled up descriptions D Relation puzzle E Coded relation	Identify logical relations among statements; and analyze logically complex statements into their truth-functional or quantificational components.
Unit 4	Seating or Placing Arrangement	Problems based on linear and circular based arrangement	
Unit 5	Direction Sense Test	A Introduction B Problems based on angular changes in direction Problems	Distinguish the basic elements of arguments and recognize the

		on Shadows D General Problems based on Pythagoras Theorem	different types of arguments.
Unit 6	Syllogism and Data Sufficiency	A Syllogism: Introduction of logic, Rules of syllogism, Two statement problem, Three statement problem B Data Sufficiency: Problems of Data sufficiency based on all Chapters.	Symbolize natural language statements in the language of propositional and predicate logic.

Specify Course Outcome:

This course enables students to develop their ability to reason by introducing them to elements of formal reasoning. The primary focus will be on recognizing the logical structure of arguments. The primary focus will be on recognizing the logical structure of arguments.

Program Outcome:

Studying logic also advances understanding of symbolic systems generally and in particular those of mathematics and computer science. Logic, then, occupies the ground that is intermediate between literary and quantitative analysis.

Signature of Teacher

Surnar S. B.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil Mohiuddin **Department: Computer Science**

Program: BCS SY **Subject**: COMPUTER SCIENCE **Course Code**:Lab BCS- 406

Paper Title: RDBMS

Unit Number	Unit Name	Topics	Unit-wise Outcome
		What is SQL? Types of SQL Commands Study of Datatypes in ORACLE Creating Tables & Retrieving , Manipulating Data from tables Study of Altering Tables IN ORACLE Study of Data Constraints in ORACLE Study of Operators Study of SQL Functions Study of Views in ORACLE Study of Joining Tables in ORACLE Study of Subqueries in ORACLE Study of in PL/SQL Blocks in ORACLE Study of in Triggers in ORACLE Study of in Cursors in ORACLE	**Study and demonstrate the various query i.e DDL/DML/DCL/DQL/TCL on database**

Specify Course Outcome: Students can perform to insertion, updatation, deletion and retrieving data in database.

Specify Program Outcome: Learning Java and Relational Database Management System so that to Implementation of various application with the help of front end and backend.

Signature of Teacher

SHAIKH KHAJA MOHIUDDIN

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P. **Department: Comp. Sci/App**

Program: BCS SY **Subject**: Comp Sci/Comp App

Course Code: **Lab BCS-407** **Paper Title: Java(PR)**

Sr.No.	**Topic**	To understand how to design, implement, test, debug, and

1	Program to demonstrate Constant Variable.	document programs that use basic data types and computation, simple I/O, conditional and control structures, string handling and functions. 2. To understand the importance of Classes & objects along with constructors, Arrays and Vectors. 3. Discuss the principles of inheritance, interface and packages and demonstrate though problem analysis assignments how they relate to the design of methods, abstract classes and interfaces and packages.
2	Program to demonstrate scope of Variable	
3	Program to demonstrate branching statement	
4	Program to demonstrate Looping statement	
5	Program to demonstrate simple class	
6	Program to demonstrate method parameter	
7	Program to demonstrate method overloading	
8	Program to demonstrate constructor	
9	Program to demonstrate static member	
10	Program to demonstrate Method overriding	
11	Program to demonstrate Final variable, Method and Final Class.	
12	Program to demonstrate Finilize method()	
13	Program to demonstrate Array and It's types.	
14	Program to demonstrate String class and it's method.	
15	Program to demonstrate String Buffer and it's method.	
16	Program to demonstrate inheritance and its Types	
17	Program to demonstrate Abstract method and Abstract	

- **Specify Course Outcome:**

  1.To understand how to design, implement, test, debug, and document programs that use basic data types and computation, simple I/O, conditional and control structures, string handling and functions.

  2. To understand the importance of Classes & objects along with constructors, Arrays and Vectors.

  3. Discuss the principles of inheritance, interface and packages and demonstrate though problem analysis assignments how they relate to the design of methods, abstract classes and interfaces and packages.

4. To learn experience of designing, implementing, testing, and debugging graphical user interfaces in Java using applet and AWT that respond to different user events. 6. To understand Java Swings for designing GUI applications based on MVC architecture.

- **Specify Program Outcome**

1. Implement Object Oriented programming concept using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.
2. Identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
3. Demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
4. Demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development.

Signature of Teacher

Waghmare V. P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Ambhure D. P. **Department: Comp. Sci/App**

Program: BCSTY(V-Sem) **Subject**: Computer Science **Course Code**: BCS 501

Paper Title: Windows Programming with C#.NET

Unit Number	Unit Name	Topics	Unit-wise Outcome
1	**Introduction**	Introduction to .Net Technology & Framework .Net Architecture Common Language Runtime(CLR) IDE Components Intellisense Project Types Java vs C#	Understanding of the DOTNET framework.
2	**Windows Applications and Windows Controls**	Important Classes Used in Windows Creating and Customizing Windows Form TextBox and Label Control Button, CheckBox and RadioButton ListBox and ComboBox control Menus and Dialog Boxes	Implementing Windows controls for creation of windows applications.
3	**Functions, Arrays and Strings**	C# Function Call by Value & Call by Reference Out Parameter Array and ArrayList class Jagged Array String Class	Use of functions, arrays and Strings in programs
4	**Properties, Indexers, Delegates &Events**	Properties Indexers Delegates Multicast Delegates Custom events	Understanding and using the various characteristics of c# like properties, indexers, delegates, events.

5	**Namespace, interface & Exception handling**	Creating & using Namespace(DLL library)	Creatingand usingdynamic link libraries, and handling exceptions.
		Creating & using interface	
		Try Catch Block	
		Using Finally Block	
		Custom Exception	
6	**Database Connectivity**	Introduction ADO.Ne	Creating application using ADO.Net.
		Advantages of ADO.Net	
		Developing a Simple ADO.NET Based	
		Retrieving & Updating Data From Tables	
		Disconnected Data Access Through Dataset Objects	

Specify Course Outcome:

- Enhancethe knowledge on basics concepts of object oriented programming.
- Impart the knowledge of CLR and DOTNET framework.
- Become skilled at C# cors as well aswindows programming.
- Able to create application using ADO.net.

Specify Program Outcome:

- Get adequate knowledge about C#.
- Expertise in core as well as windows programming.
- Enhance the concepts of OOPs.

Signature of Teacher

Ambhure D. P.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P.

Department: Computer Science

Program: BCS TY

Subject: Computer Science

Course Code: BCS -502

Paper Title: Python Programming

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Introduction	Introduction to Python, Features of python , Python Interpreter , Python installation	Python overview
Unit 2	Data types and control structures	Operators (unary, arithmetic, etc.) Data types, variables, expressions, and statements, Assignment statements , Strings and string operations, Control Structures: loops and decision	Structure of statement
Unit 3	Modularization and Classes	Standard modules 1, Packages, Defining Classes , Defining functions ,Functions and arguments (signature)	Study of classes
Unit 4	Exceptions and data structures	Data Structures (array, List, Dictionary) , Exception Raising , Exception Handling , Error processing	Study of Exception array error
Unit 5	Object Oriented Design	Programming types , Object Oriented Programming , Inheritance , Polymorphism	Oop's overview
Unit 6	Database Connectivity and Networking	Getting MySQL for python , Connecting with database, Passing Query to MySQL,Networking	Connectivity study

Specify Course Outcome: To understand the basic concept of Python.. gain understanding of web based console & windows programming. teach student application development technology and understand quick development concept with less code.

Specify Program Outcome: To develop background knowledge as well as core expertise in Python, To understand the console based application and provide the knowledge creatingweb based applications.,To learn the object oriented concepts.

Signature of Teacher

Waghmare V. P.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shejul B. V. **Department:** Computer Science

Program: BCS TY **Subject**: Computer Science

Course Code: BCS -503

Paper Title: Data Science

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Introduction to Data Science	Data Mining, classification, regression , Essential of algorithms and data structure, Data Visualization ,Software Engineering trends and technique.	Understand data mining,data visualization ,software trends & techniques
Unit 2		Data base & Data Warehousing, AI & ANN basic, Non-Scalable & Scalable data , Use of Statistics Methods & technique, Descriptive and Inferential statistics , Data Analysis, Hypothesis techniques	Learn database and data warehosing,ai and ann basic,scalable and non-scalable,data analysis & hypothesis techniques
Unit 3		Introduction to data computational techniques conventional & modern ,Artificial Intelligence, Machine learning big data, parallel Computing and algorithms ,Managing Big Data and different techniques ,Research Methodology basics and importance	Utilize data computational techniques,artificial intelligence,machine learning big data,research methodology basics and importance
Unit 4		Basic introduction to Data Science ,Various Applications of data Science , Importance of Data Science in Future ,Data Analysis, techniques, Programming paradigm & algorithms, data structures	Learn data science, its applications,& its importance,data science in future,algorithm and data structures
Unit 5		Data Mining V/S Data Science , Experimentation, Evaluation and Project Deployment Tools, Predictive Analytics and Segmentation using Clustering , Applied Mathematics and	Understand difference between data mining and data science,project development tools,predictive

		Informatics, Exploratory Data Analysis	analytics, exploratory data analysis
Unit 6		Optimization for Data Science, Data scientist roles and responsibilities, Data acquisition and data science life cycle ,Big Data Fundamentals and Hadoop Integration with R,Experimentation, Evaluation and Project Deployment Tools	Learn optimization for data science,data scientist roles,data science life cycle, Hadoop integration with R

Specify Course Outcome: 1. Review the fundamental concepts of Data Science 2. Evaluate the techniques for better Data Science understanding. 3. Evaluate the techniques for perfect Data Analysis 4. To develop applications/algorithms in the field of Data Science 5. To evaluate different Data Science techniques & tools

Specify Program Outcome: 1. To learn and understand fundamental concepts of Data Science 2. To learn basic Data Science operations. 3. To understand and work on different algorithms for Data Science 4. To expose students to current applications and opportunities in Data Science emerging field.

Signature of Teacher

Shejul B. V.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil Mohiuddin **Department:** Computer Science

Program: BCS TY **Subject**: Computer Science

Course Code: BCS -504 B

Paper Title: Basics of Linux

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Introduction to Linux	Operating system,What is Linux, Advantages of Linux, Disadvantages of Linux,Distributions of Linux Functions of Operating system, History and development of of Linux, Features of Linux, Installation steps of Linux, Difference between Linux and Windows, Difference between Linux and Unix	Basic introduction to Linux
Unit 2	Handling Linux Environment	Basic Commands, Linux standard directories,Hardware requirement for linux, Commands for files and directories,File processing commands,Mathematical Commands, Login,Logout and Remote Login,different GPU(cal,date,wc,who), Basic filters–head,tail,sort,grep,different options and expressions for grep	Basic commands of linux operating system
Unit 3	Linux boot process	Boot Loaders (LILO and GRUB),System Initiazation, inittab, rc.sysinit,rc, Printing files: Print Spool directory,sending files to Printer	Booting Procedures and startup routine check of linux system
Unit 4	VI Editors	Editors,use of VI,features of Vi, VI basics,Different modes and working with VI, Command mode-Curser movements(k,j,h,I),delete(character,line,word),Screen up,down use of repeat factor,Joining lines(J), Input Mode-switching with (I,o,r,s,a,I,O,R,S)Ex mode-saving(w,x,q),writing selecting lines to another	Vi Editors and there modes like command mode, escape mode and colon mode
Unit 5	Sharing Files with Other users	Maintaining User accounts,changing password,creating group Accounts,Granting access to files,Changing file ownership, Protecting files,making a file readonly, Free command and top utility, working with processes: types of process,ps Command,Creating process,killing process	User Management and Process Management
Unit 6	Managing Disk space	Df,du commands,creating Additional free disk space,Locating unused files,Setting system clock, Communication utility:who,who am I,finger,mesg,write,wall,talk, Creating a message of	Disk Related Commands

		the day,X windows System, Graphical user interface: KDE and GNOME Desktop Envionment	And various Environment in linux

Specify Course Outcome:

- Understand the different Linux basic commands.
- Awareness of existing demanding trends in IT industry in order to get placement & research in open source market.
- Understand the Linux OS architecture.
- Install and use different types of distributions available in market.
- Understand the different Linux basic commands.

Specify Program Outcome:

- This course shall build a platform for students to start their own enterprise

• For Making Student Job Ready

• To become familiar with open source software and user interface.

• To securely handle OS without any viruses and malwares.

• For easily use free software available on internet.

• To understand the basic operating system command.

• To understand the basic concept of Linux operating system

Signature of Teacher

Shaikh Khaja Jamil Mohiuddin.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Patode S. S

Department: Computer Science

Program: BCS TY

Subject: Computer Science

Course Code: BCS -505 B

Paper Title: System Analysis and Design

Unit Number	Unit Name	Topics	Unit-wise Outcome

Unit 1	Introduction	System Definition, Characteristics. Elements and Types of system, Need of System Analysis and design.Role and Qualities of System Analyst, System Development Life Cycle.	To learn basic things of systems, System development Life cycle, and System Analysis.
Unit 2	Feasibility Study	Project Initiation, Feasibility study, Ascertaining HW/SW needs, Criteria for HW/SW selection, Make v/s Buy Decision, Cost Benefit Analysis.	To determine specific needs of system.
Unit 3	Decision Modules & Scheduling	Structured Analysis tools-DFD, Data Dictionary, Decision Tree, Decision Table, Structured English, Activity planning control, Activity Diagrams, Case modeling, UML, Class Diagram. System Proposal, Project Scheduling, Information Gathering Tools-Interviews, Questionnaire, JAD, Prototyping.	Evaluate tools and techniques.
Unit 4	Tools for System Analysis	Data Flow Diagram (DFD), Logical and Physical DFDs, Developing DFD; System Flowcharts and Structured charts, Structured English, Decision trees and Decision tables.	Evaluate tools and techniques.
Unit 5	Design & Implementation	System Design, Input/output Design, From Design, From Design, Database Design, File organization, System Implementation Plan, Activity Network for Conversion, Combating Resistance to Change, System Testing, Test Plan AND test data, Types of	Use appropriate methods and techniques to design software.

		System Test, Quality Assurance, Documentation.	
Unit 6	System Security and Audit	System Security, Security Threats, Risk Analysis, Control measures, System Audit, Disaster Recovery Planning.	Protect sensitive data from unauthorized access and identify potential security risk.

Specify Course Outcome:

- To learn basic things of systems, System development Life cycle, and System Analyst.
- To determine specific needs of system.
- Discuss approaches and tasks of system. Planning for developing system
- Evaluate tools and techniques.
- Use appropriate methods and techniques to design software.
- Implementation of Developed System, Evaluation and Testing of system.

Specify Program Outcome:

- System analysis helps in discovering means to design systems.
- System analysis helps in discovering sub-system may have apparently conflicting objectives.
- It helps in achieving inter compatibility and unity of purpose of sub-systems.
- It offers a means to create understanding of the complex structures
- It helps to understand writing system proposals, system development scheduling, and cost-benefits analysis etc. also dealing with quality assurance

Signature of Teacher

Patode S. S.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Ambhure D. P. **Department: Comp. Sci/App**

Program: BCSTY(VI-Sem)
Subject: Computer Science **Course Code**:Lab BCS 506
Paper Title: Windows Programming with C#.NET

Unit Number	Topics	Outcome
1	Creating simple windows application.	Understanding DOTNET framework and various characteristics of C#. Understanding of various Windows controls. Use of DOTNET framework for developing console nd Windows applications.
2	Text Box and Button control.	
3	List Box and Combo Box Control.	
4	Designing Menus.	
5	Using dialog boxes.	
6	Functions.	
7	Array.	
8	Creating properties.	
9	Creating Indexers.	
10	Creating Delegates.	
11	Creating custom namespace.	
12	Handling exception.	
13	Creating and using custom exception.	
14	Accessing data from database.	
15	Modifying data from database.	

Specify Course Outcome:

- Expertise in windows programming.
- Develop applications using ADO.NET.

Specify Program Outcome:

- Understand the DOTNET framework
- Familiarity in the concept of developing window application.
- Develop background knowledge as well as core expertise in C#.
- Builda consoleand windows application.
- Develop applications using ADO.Net.

Signature of Teacher

Ambhure D. P.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P. **Department:** Computer Science

Program: BCS TY **Subject**: Computer Science

Course Code: Lab BCS 507

Paper Title: Python Programming

Number	Program	Pro Outcome
1	1 Program to demonstrate Constant Variable.	Understand the console based application and provide the knowledge creating web based applications.,To learn the object oriented concepts through python .
2	Program to demonstrate scope of Variable	
3	Program to demonstrate branching statement.	
4	Program to demonstrate Looping statement	
5	Program to demonstrate simple class	
6	Program to demonstrate String class and it‟s method.	
7	Program to demonstrate String Buffer and it‟s method.	
8	Program to demonstrate inheritance and its Types	
9	Program to demonstrate package	
10	Study of BIOS options	
11	Program to demonstrate polymorphism	
12	Program to demonstrate networking	

Specify Course Outcome: To understand the basic concept of Python.. gain understanding of web based console & windows programming. teach student application development technology and understand quick development concept with less code.

Specify Program Outcome: To develop background knowledge as well as core expertise in Python, To understand the console based application and provide the knowledge creatingweb based applications.,To learn the object oriented concepts.

Signature of Teacher

Waghmare V

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shejul B. V. **Department: Computer science**

Program: BCS TY **Subject**: computer science

Course Code: BCS 601

Paper Title: Mobile Application Development

Unit Number	Unit Name	Topics	Unit-wise Outcome
UNIT I	FUNDAMENTALS MOBILE PROGRAMMING	Introduction to Mobile Programming ,Android: An Open Platform for Mobile Development ,Overview of the Operating Systems used on different mobile devices , Android Operating System, Its	**Learn mobile programming,operating system used on mobile devices,android os and its types,features and versions,android**

		Features and Versions, Android Development Tools , Introducing the Development Framework ,Installing Android Studio	**development tools and installation of android**
UNIT II	ANDROID ARCHITECTURE	Android Stack , Android applications structure , Creating a project ,Configuring the Android Manifest File , Understanding Activities ,Understanding the Components or layouts of a Screen	**Utilize android applications structure,project create,android manifest file & components of screen**
UNIT III	ACTIVITIES, FRAGMENTS, AND INTENTS	Understanding Activities ,Intents , Linking Activities Using Intents, Activity life cycle , Fragments	**Understand activities,activity life cycle,intents and fragments**
UNIT IV	BUILDING USER INTERFACES	Text controls ,Button controls, Toggle buttons , ImageButton, RadioButton, and RadioGroup Views, ProgressBar View , AutoCompleteTextView View , TimePicker View, DatePicker View ,AnalogClock and DigitalClock Views , WebView ,Toast notifications	Learn web and analog & digital clock views,text controls toast notification,time picker and date picker view & radio button
UNIT V	MENUS, SMS &LOCATION-BASED SERVICES	Localization, Creating the Helper Methods, Options menu and Context menu , Dialogs-Alert dialog , SMS Messaging ,Using a Content Provider , Lists view ,Displaying Maps , Getting Location Data ,Monitoring a Location using GPS	Learn localization,options and context menu,alert dialog,list view & displaying maps
UNIT VI	WORKING WITH INTERNET, DATABASES AND PUBLISHING APPS	Shared preferences , Downloading and Parsing Internet Resources, Using the Download Manager, Files access ,ntroducing Android Databases, Introducing SQLite,	Understand shared preferences,internet resources,download manager,SQlite database,content values

		Content Values and Cursors, Working with SQLite Databases, Preparing for publishing ,Publishing to the Android Market	and cursers,preparing for publishing,publishing to android market

Specify Course Outcome: Awareness of existing demanding trends in IT industry in order to get placement & research • Understand the Android OS architecture. • Install and use appropriate tools for Android development, including IDE, device emulator, and profiling tools. • Understand the Android application architecture, including the roles of the task stack, activities, & services. • Build user interfaces with fragments, views, form widgets, text input, lists, tables, and more.

Specify Program Outcome: This course shall build a platform for students to start their own enterprise • For Making Student Job Ready • To gain an understanding of the processes that are involved in an Android developed application • To become familiar with Android development tools and user interface. • To understand Activity and Intends • To understand SQLite Database. • To Understand Web view control • Ability to build Many simple apps that you can share with your friends

Signature of Teacher

Shejul B. V.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Waghmare V. P. **Department:** Computer Science

Program: BCS TY **Subject**: Computer Science

Course Code: BCS -602

Paper Title: Fundamental of Image Processing

Unit Number	**Unit Name**	**Topics**	**Unit-wise Outcome**
Unit 1	Introduction	Introduction to Digital image processing Applications of image processing Fundamental steps in digital image processing	Learn concept of image processing

		Elements of visual perception, Brightness, Discrimination and adaptation	
Unit 2	Introduction to Digital Image Representation	Components of an image processing system, Representing digital images, co-ordinate convention system, Matrix representation, Reading, displaying and writing of images, Data class, Image types, sampling and quantization	Learn digital image representation
Unit 3	Color Image Processing	Color fundamentals, Basics of full color image processing, Color models and color spaces, RGB color model, HSV color model, CMY color model, Pseudo color image processing, Color image representation, MATLAB functions for color model conversions.	Understand colour image processing
Unit 4	Intensity Transformation and spatial filtering techniques	Background, basic intensity transformation function using imadust(), Histogram processing and function plotting, histogramequalization, histogram type, Fundamentals of filtering, neighbourhood, Linear spatial filtering, Non linear spatial filtering, fspecial() and imfilter().	Understand histogram processing
Unit 5	Image Restoration	A model of image degradation and restoration process, Noise models, Geometric transformation function, image registration. Restoration techniques.	Understand restoration techniques
Unit 6	Introduction to MATLAB	Advantages and disadvantages of MATLAB Using MATLAB	Understand Matlab

		scratch pad, MATLAB environment Variables and arrays, scalar and array operation, MATLAB operator, Multidimensional array, Introduction to M function programming.	

Specify Course Outcome: understand Matlab program and digital image processing

Specify Program Outcome: learn matrix array and m programming

Signature of Teacher

Waghmare V. P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Surnar S.B. **Department: Computer Science**

Program: BCSTY **Subject**: **Computer Science**

Course Code: BCS- 603

Paper Title: Project

Topics	**Outcome**

Project	This program aims at developing tremendous Computer Skills to the learners. The program will allow Learners to gain knowledge about computers in an "ALL AROUND" fashion; which will include both hardware and software components The program will develop programming and networking skills of the learners Learners of the BCA Program will have theoretical as well as practical knowledge and demonstrate application of technical principles in a professional work setting

Specify Course Outcome: In-depth understanding of various concepts of C language. Ability to read, understand and trace the execution of programs.• Skill to debug a program.• Skill to write program code in C to solve real world problems.

Specify Program Outcome: To provide thorough understanding of nature, scope and application of computer and computer languages • To develop interdisciplinary approach among the students

Signature of Teacher

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shaikh Khaja Jamil mohiuddin **Department: Computer Science**

Program: BCS TY **Subject**: **Computer Science**

Course Code: BCS- 604 B

Paper Title: Linux Administration

Unit Number	**Unit Name**	**Topics**	**Unit-wise Outcome**
Unit 1	System Administration	Managing User Accounts, Managing Groups.Managing Users, Managing Permissions, Managing Passwords, Granting System Administrator Privileges to Regular Users ,Disk Quotas	Accounts and Groups Management of users

Unit 2	Automating Tasks	Running Services at Bootup:- Beginning the Boot Loading, Process, Booting into the Default Run level, Understanding init Scripts and the Final Stage of Initialization, Controlling Services at Boot withAdministrative Tools, Starting and Stopping Services Manually, Scheduling Tasks	Startup routine and booting procedure and there Run levels
Unit 3	System-Monitoring Tools	Console-Based Monitoring, Using the kill Command to Control Processes, Using Priority Scheduling and Control., Graphical Process and System Management Tools, KDE Process- and System-Monitoring Tools	Monitoring system processes related commands
Unit 4	Backing Up	Choosing a Backup Strategy, Choosing Backup Hardware and Media, Using Backup Software, Copying Files	Backup and recovery
Unit 5	Networking and TC/IP	Using Network Configuration Tools, Advanced Wireless Networking, Dynamic Host Configuration Protocol , Setting Up a Telnet Server, Setting Up an SSH Server	Networking and connectivity
Unit 6	Server & Printer Management	Installing the Apache Server, Starting and Stopping Apache, Using the Network File System, Putting Samba to Work:- Configuring Samba with system-config-samba, Configuring Samba with SWAT, Configuring and Managing Print Services, Creating Network Printers,Creating and Configuring Local Printers ,	Various servers configureations

Specify Course Outcome:

- Awareness of existing demanding trends in IT industry in order to get placement & research in open source market.
- Understand the Linux OS architecture.
- Install and use different types of distributions available in market.
- Understand the different Linux administration commands

Specify Program Outcome

- This course shall build a platform for students to start their own enterprise
- For Making Student Job Ready
- To become familiar with open source software and user interface.
- To securely handle OS without any viruses and malwares.
- For easily use free software available on internet.
- To understand the basic operating system command.
- To understand the basic concept of Linux operating system administration

Signature of Teacher

Shaikh Khaja Jamil Mohiuddin.

Dnyanopasak Shikshan Mandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Ambhure D. P. **Department:** Computer Science

Program: BCS TY **Subject**: Computer Science

Course Code: BCS -605

Paper Title: Network Essential

Unit Number	Unit Name	Topics	Unit-wise Outcome
Unit 1	Review of Basic Concepts	What is Network, Benefits of Networking, Network Architecture – Protocol Hierarchies, Reference Model,	Understand network terminology and network architecture

		Connection oriented & Connectionless Services, Underlying Technologies- IP Address, LAN & WAN	
Unit 2	LAN Hardware	Network Interface card, Ethernet Technology 10 Base 2 & 10Base 5, 10 Base T, Network Device Router & Switch, Repeaters, Wireless LAN	Describe the network devices and understand Ethernet technology.
Unit 3	The Internet Layer & Routing Protocols	IP-Datagram, ICMP - Types of Messages, BOOTP and DHCP, Routing Protocol, RIP, OSPF, BGP	Understand the interner layer and routing protocols.
Unit 4	The Transport Layer	The transport service- services primitives, Sockets, Elements of transport protocols, TCP Frame Format, UDP Protocol	Learning the transport layer ensures that data is delivered from one device to another device.
Unit 5	Introduction to Network Security	Network Security Overview and Policies, Network Security Devices, Protecting Networks with Firewalls, Using Intrusion Detection and Prevention Systems, Protecting a Network from Malware- Viruse, Worms, Spyware and Spam, Malware Protection	Learn the network security policies and identify types of malware.
Unit 6	Wide Area Networking and Cloud Computing	Wide Area Network Fundamentals-WAN Devices, WAN Connection methods- Circuit-Switched WANs, Leased Lines, Packet-Switched WANs, WANs over the Internet, Cloud Computing	Understand secure and reliable cloud connectivity and optimize network performance.

Specify Course Outcome:

Evaluate the usability of mobile devices such as smart phones. • Select appropriate network technologies in commercial and enterprise applications.

Specify Program Outcome:

To understand the basics of wireless voice and data communication technologies.

To study about the wireless communication Techniques.

To understand different routing algorithms.

To understand security and privacy issues in wireless environments.

Signature of Teacher

Ambhure D. P.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Shejul B. V. **Department: Computer science**

Program: BCS TY **Subject**: computer science

Course Code: Lab BCS-606

Paper Title: Android Programming

no	Program	pro Outcome
1	Installing Eclipse and Android Studio	
2	Study of Android Application structure.	
3	Sample Apps for Workingwith AndroidManifest.xml	
4	Sample Apps for Working with Activities.	
5	Sample Apps for Working with Application Context	
6	Apps for Demonstration of Intends	
7	Apps for Demonstration of Activity Life Cycle.	Classify the Android application

8	Apps for demonstration of Buttons and Textbox.	architecture, including the roles of the task stack, activities, & services.
9	Designing simple Calculator Apps	
10	Sample Apps for Working with Images and Buttons	
11	Sample Apps for Working with Notification and Toast.	
12	Sample Apps for Demonstration of Context menu and Dialogs	
13	Sample Apps for Working with SQLite Database.	
14	Sample Apps for Demonstration of File Access.	
15	Sample Apps for Demonstration of Shared preferences and Preferences activity	

Specify Course Outcome: Understand the Android application architecture, including the roles of the task stack, activities, & services.•Build user interfaces with fragments, views, form widgets, text input, lists, tables, and more.

Specify Program Outcome: crating android app

Signature of Teacher

Shejul B. V.

DnyanopasakShikshanMandal's

College of Arts, Commerce and Science, Parbhani

Pro-forma for program and course outcomes (2.6.1)

Name of Teacher: Kandi S. J. **Department: Computer science**

Program: BCS TY **Subject**: computer science

Course Code: Lab BCS-607

Paper Title: DIP

no	Program	pro Outcome
1	Demonstration of matlab environment.	Students learn Matlab Students understand operation of image processing
2	Write a first matlab simple program.	
3	Write program for basic math operation.	
4	Write program for image navigatives	
5	Write program for log transformation.	
6	Write a program for reading and displaying images.	
7	Demonstration of color image representation.	
8	Write program for histogram processing.	

9	Write program for gamma transformation.	
10	Write a program for imadjust() function.	
11	Write a program for imfilter() function.	
12		
13		

Specify Course Outcome learn program using image functions in matlab

Specify Program Outcome: understand m programming

Signature of Teacher

Kandi S. J.