Pune Vidyarthi Griha's

COLLEGE OF SCIENCE & COMMERCE

(Accredited by NAAC)

(Affiliated to Savitribai Phule Pune University & Approved by Govt. of Maharashtra)

S.No.44, Vidyanagari, Parvati, Pune- 411009

Telephone: (020) 2422 1484, Website: www.pvgcosc.ac.in

NAAC - CYCLE 2 - SSR

2.6.1 Programme Outcomes (POs) and Course Outcomes (COs) for all Programmes offered by the institution are stated and displayed on website.

Academic Year 2024-25

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CO-PO of Computer Science Department

B.Sc. (Computer Science) 2024-25

Course Outcome:

- To develop problem solving abilities using a computer.

- To build the necessary skill set and analytical abilities for developing computer based solutions for real life problems.

- To train students in professional skills related to Software Industry.

- To prepare necessary knowledge base for research and development in Computer Science.

- To help student's build-up a successful career in Computer Science and to produce entrepreneurs who can innovate and develop software products.

Program Outcome:

PO1: Develop creative skills, critical thinking, analytical skills and research to address the real world problems using computational skills

PO2: Understand and apply mathematical foundation, computing and domain knowledge and develop computing models for defined problems

PO3: Understand software project management and computing principles with computing knowledge to manage projects in multidisciplinary environments

PO4: Illustrate the concepts of systems fundamentals, including architectures and organization, operating systems, networking and communication

PO5: Understand and apply the concepts of Digital Electronics, Computer Architecture, IoT etc.

PO6: Recognize the need for and develop the ability to engage in continuous learning as a Computing professional
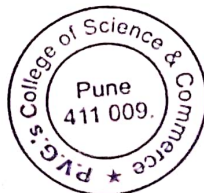
PO7: Apply modern computing tools, skills and techniques necessary for innovative software solutions

PO8: Communicate effectively with the computing community as well as society by being able to comprehend effective documentations and presentations

PO9: Gain Self Discipline and commit Professional Ethics in global economic environment

PO10: Individual & Team Work: Ability to work as a member or leader in diverse team's in multidisciplinary environment

PO11: Identify opportunities, entrepreneurship vision and use innovative ideas to create value and wealth for the betterment of the individual and society.

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M.Sc. (Computer Applications)

Course Outcome

The objective of the Program is to produce trained software professionals with hands-on experience on state-of-the art technologies who will be able to handle challenges in IT industry.

The objectivesof M.Sc. (Computer Applications) program are: -

• To produce knowledgeable and skilled human resources that is employable in IT andITES.

• To impart knowledge required for planning, designing and building ComplexApplication Software Systems as well as to provide support for automated systems orapplications.

Program Outcomes:

After successful completion of the Programme, the students shall be able to

PO 1: Demonstrate understanding of fundamental and advance concepts in emerging areas

PO 2: Design and develop innovative computer applications.

PO 3: Analyze existing research reported in the literature

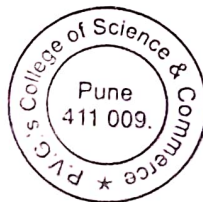PO 4: Propose alternate solutions by undertaking research work.

M.Sc. (Computer Science)

Couse Outcome

CO1: This comprehensive program aims to equip students with a profound understanding of theoretical concepts, practical skills, and cutting-edge technologies relevant to the rapidly evolving world of computing.

CO2: With a strong emphasis on academic excellence and research-driven learning, the M.Sc. CS program seeks to nurture a community of skilled Computer Science professionals capable of addressing complex challenges across various industries.

CO3: By fostering a stimulating and innovative learning environment, we strive to empower our students to become leaders, innovators, and agents of positive change in the field of Computer Science.

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F.Y.B.Sc. (Computer Science) - Sem – I Course Type: Subject 1 Code: CS-101-T

Course Title : Problem Solving Using C Programming

Course Outcomes

- Explore algorithmic approaches to problem solving.
- Control the sequence of the program and give logical outputs.
- Understand and manage Input /Output operations in 'C' program
- Develop modular programs using control structures and arrays in 'C'

Course Type: Subject 1 Code : CS-102-P Course Title :Lab Course based on CS-101-T

Course Outcomes:-

- Explore and develop the algorithmic approaches to problem solving.
- Understand and implement modular programs using control structures and arrays in 'C'.
- Implement programming logic and also test, debug and execute programs.
- Implement Control the sequence of the program and give logical outputs.

Course Type: GE/OE Code : OE101CS Course Title :Office Automation I

Course Outcomes

- Prepare the professional word documents
- Explore various tools in the word processing software.
- Develop documents using word processing advanced tools.

Course Type: GE/OE Code : OE102CS

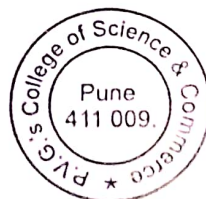### Course Title : Introduction to Computers and Basics of Internet

Course Outcomes

- Use the computer peripherals effectively
- Use the internet for the day to day life
- Explore various applications available over the internet

Course Type: GE/OE Code : OE103 CS Course Title : Introduction to Google

Course Outcomes

- Use the google tools for the day to day life
- Explore various applications available in the google tools.
- Develop the skills to implement the skills available in the google tools.

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Course Code: ELE-1101-T FYBSc(CS)- Name of Course/paperPrinciples of Analog Electronics

CO1 Understand the concept of semiconductor diodes.
CO2 Understand the different applications of FET, BJT and MOSFET.
CO3 Understand working principle of different sensors.
CO4 Use Op-amp for different application.

Course Code: ELE-1102-P FYBSc(CS)- Name of Course/paper Electronics Practical Course I

CO1 To study different semiconductor diodes.
CO2 To understand applications of IC 555 as a multivibrator.
CO3 To understand applications of sensors
CO4 To study different applications of op-amp

Course Code: MTS-1101-T FYBSc(CS)- Name of Course/paper Matrix Algebra

CO1 Work with graphs and identify certain parameters and properties of the given graphs
CO2 Perform certain algorithms, justify why these algorithms work, and give some estimates of the running times of these algorithms.
CO3 Solve basic exercises of the type: given a graph with properties X, prove that the graph also has property
CO4 Develop an appreciation for the literature on the subject and be able to read and present results from the literature.
CO5 Write cohesive and comprehensive solutions to exercises and be able to defend their arguments

F.Y.B.Sc. (Computer Science) - Sem – II Course Type: Major Course Code : CS-151-T

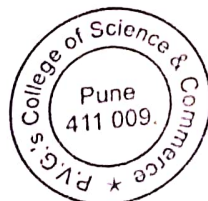# Course Title: Advanced C Programming

Course Outcomes

• Develop modular programs using control structures, function ,pointers, arrays, strings and structures
• Design and develop solutions to real world problems using C.
• Understand and repeat the sequence of instructions and points for a memory location.
• Identification, analyzation, development, verify and document the requirements for a computing environment

Course Type: Major Course Code : CS-151-P Course Title :Lab Course based on CS-151-P

Course Outcomes

• Develop modular programs using function, pointers, arrays, strings and structures

• Design and develop solutions to real world problems using Advanced C programming.

Course Type: GE/OE Code : OE151CS Course Title :Office Automation II

Course Outcomes

- Prepare the professional presentations
- Explore various tools in the powerpoint presentation software.
- Develop documents using powerpoint advanced tools.

Course Type: GE/OE Code : OE152CS Course Title : Computer Fundamentals

Course Outcomes

- Use the computers for the day to day life
- Learn the fundamental concepts of computer science
- Explore various applications available in the computers.
- Explain the needs of hardware and software required for a computation task

Course Type: GE/OE Code : OE153CS Course Title : Introduction to Google Apps II

Course Outcomes

- Use the google tools for the day to day life
- Explore various applications available in the google tools.
- Develop the skills to implement the skills available in the google tools.

F.Y.B.Sc.(Computer Science)-Sem–II Course Type: Subject2

Code:MTC-151-T Course Title:Graph Theory

Course Outcomes
- Work with graphs and identify certain parameters and properties of the given graphs.
- Perform certain algorithms, justify why these algorithms work, and give some estimates of the running times of these algorithms.
- Solve basic exercises of the type: given a graph with properties X, prove that the graph also has property Y.
- Develop an appreciation for the literature on the subject and be able to read and present results from the literature.
- Write cohesive and comprehensive solutions to exercises and be able to defend their arguments.
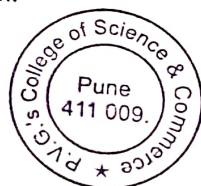
Course Code: ELE-1101-T FYBSc(CS)- Name of Course/paper Principles of Analog Electronics

CO1 Understand the concept of semiconductor diodes

CO2 Understand the different applications of FET, BJT and MOSFET.

CO3 Understand working principle of different sensors.

CO4 Use Op-amp for different application.

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Course Code: ELE-1102-P FYBSc(CS)- Name of Course/paper Electronics Practical Course I

CO1 To study different semiconductor diodes.

CO2 To understand applications of IC 555 as a multivibrator.

CO3 To understand applications of sensors

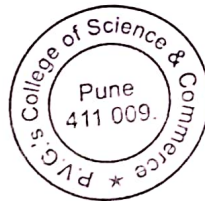CO4 To study different applications of op-amp

Course Code: SEC-101-CS-P FYBSc(CS)- Name of Course/paper Statistical Methods for Computer Science I

CO1 Present the complex data in tabular format.

CO2 Use various diagrammatic and graphical techniques to represent statistical data and interpret the data

CO3 Compute various measures of central tendency, dispersion, skewness, and kurtosis using MS-Excel and interpret the results

CO4 Establish relation between variables and estimate response for given bivariate data using software and interpret the results

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M.Sc. (Computer Applications)

First Year of Master of Computer Applications (2023 Course)

CA 501 MJ: Database Systems and SQL

Course Outcomes:

- Enumerate database applications
- Design E-R Model for given requirements and convert the same into databasetables.
- Apply Normalization techniques for database design
- Formulate database queries using SQL
- Write Embedded and dynamic queries using SQL/PLSQL

CA 502 MJ: Python Programming and Data Structures

- Develop logic for problem solving
- Determine the methods to create and develop Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.
- To be familiar about the basic constructs of programming such as data, operations,conditions, loops, functions etc.
- To write python programs and develop a small application project
- Design and implement Data structures and related algorithms
- Understand several ways of solving the same problem.
- To use well-organized data structures in solving various problems.
- To differentiate the usage of various structures in problem solution.
- Implementing algorithms to solve problems using appropriate data structures.

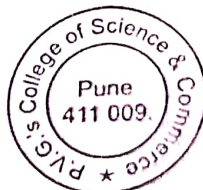## CA 503 MJ - Operating Systems

Course Outcomes:

- Explain basic concepts of operating system
- Describe algorithms for process, memory and disk scheduling
- Apply technique for inter-process communication and Multithreading.
- Implement concept of critical-section
- Compare and contrast deadlock avoidance and prevention.
- Use functions for file system management

CA 504 MJP: Lab course Based on CA 501 MJ & CA 503 MJ

Course Outcomes:

- Create database tables in postgreSQL.
- Write and execute simple, nested queries.

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CA 510A MJ: Java Programming

Course Outcomes:

- Identify classes, objects, class members and relationships for a given problem.
- Design end to end applications using object-oriented constructs.
- Apply collection classes for storing java objects.
- Use Java APIs for program development.
- Handle abnormal termination of a program using exception handling

CA 512B MJ: Cloud Computing

Course Outcomes:

- Understand the different Cloud Computing environment
- Analyze virtualization technology and install virtualization software
- Develop and deploy applications on Cloud
- Use advance techniques and apply security in Cloud Computing

CA 513B MJP : Lab course based on CA 512B MJ

Course Outcomes:

- Understand the different Cloud Computing environment
- Analyze virtualization technology and install virtualization software
- Develop and deploy applications on Cloud
- Use advance techniques and apply security in Cloud Computing
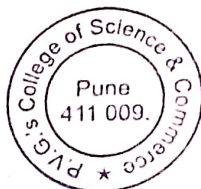
CA 531 RM: Research Methodology

Course Outcomes:

- Understand and comprehend the basics in research methodology.
- Formulate research aims and objectives
- Organize and conduct research (advanced project) in a more appropriate manner.
- Develop and practice the skills necessary to conduct, review, and publish research.
- Write a research report and thesis.

Sem II CA 551 MJ: Web Technologies

Course Outcomes:

- Develop web based application using suitable client side and server side web technologies.
- Build Dynamic web site using server side PHP Programming and Database connectivity.
- Build applications using AJAX and XML

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CA 552 MJ: Introduction to Data Science

Course Outcomes

- Perform Exploratory Data Analysis
- Obtain, clean/process, and transform data.
- Detect and diagnose common data issues, such as missing values,special values,outliers, inconsistencies, and localization.
- Demonstrate proficiency with statistical analysis of data.
- Present results using data visualization techniques.
- Prepare data for use with a variety of statistical methods and models and recognize how the quality of the data and the means of data collection mayaffect conclusions.

CA 553 MJ: Computer Networks

Course Outcomes:
- Analyze the requirements for a given organization and select appropriate network architecture, topologies, transmission mediums and technologies.
- Analyze data flow between TCP/IP model using Application, Transport and Network Layer Protocols.
- Illustrate applications of Computer Network.
- Compare and contrast different routing and switching algorithms

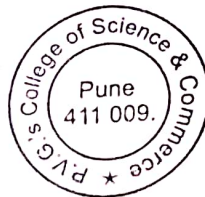## CA 560A MJ: Advanced Java Programming

Course Outcomes:

- To access open database through Java programs using Java Data Base Connectivity (JDBC) and develop the application.
- Understand and create dynamic web pages, using Servlets and JSP.
- Work with basics of framework to develop secure web applications.

CA 562B MJ: C# and .NET

Course Outcomes:

- Understand the VB.NET, C# and ASP
- Design and develop window based and web based .NET applications.
- Design and Implement database connectivity using ADO.NET.

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M.Sc. Computer Science (2023)

Sem I CS-501-MJ : Advanced Operating System

Course Outcomes

CO1: Understand the Operating Systems Structure with example of Unix/Linux.
CO2: Learn the structure of files and directory in UNIX/LINUX OS.
CO3: Use various system calls related to file subsystem.
CO4: Learn the process control subsystem structure in UNIX/LINUX OS
CO5: Use various system calls related to process control subsystem.
CO6: Learn the concept of signal handling with practical implementation
CO7: Understand the memory management policies of UNIX/LINUX OS

CS-502-MJ : Artificial Intelligence

Course Outcomes

CO1: Understand the fundamental concepts of Artificial Intelligence.
CO2: Identify and apply appropriate search strategies for AI problem.
CO3: Identify knowledge and represent AI algorithms using various techniques.
CO4: Implement ideas to design and develop AI solutions for complex challenges.
CO5: Analyze the performance of AI models and interpret their results.
CO6: Implement ideas underlying modern logical inference systems.
CO7: Understand recent trends and future scope of AI.

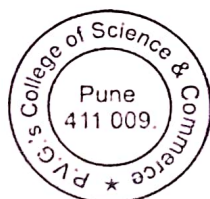### CS-503-MJ : Principles of Programming Language

Course Outcomes

CO1: Separate syntax from semantics
CO2: Compare programming language designs
CO3: Understand their strengths and weaknesses
CO4: Learn new languages more quickly
CO5: Understand basic language implementation techniques
CO6: Learn small programs in different programming Languages

CS-504-MJP : Lab Course on CS-501-MJ (Advanced Operating System)

Course Outcomes

CO1: Understand the Operating Systems Structure with example of Unix/Linux.
CO2: Learn the structure of files and directory in UNIX/LINUX OS.
CO3: Use various system calls related to file subsystem.
CO4: Learn the process control subsystem structure in UNIX/LINUX OS
CO5: Use various system calls related to process control subsystem.
CO6: Learn the concept of signal handling with practical implementation

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CS-505-MJP : Lab Course on CS-502-MJ (Artificial Intelligence)

Course Outcomes On Completion of this course, student will be able to –

CO1: Understand the fundamental concepts of Artificial Intelligence.

CO2: Identify and apply appropriate search strategies for AI problem.

CO3: Identify knowledge and represent AI algorithms using various techniques.

CO4: Implement ideas to design and develop AI solutions for complex challenges.

CO5: Analyze the performance of AI models and interpret their results.

CO6: Implement ideas underlying modern logical inference systems.

CO7: Understand recent trends and future scope of AI.

CS-510-MJ : Advance Databases and Web Technologies

Course Outcomes On Completion of this course, student will be able to –

CO1: Students will get knowledge of advance database technology

CO2: Students will be able to choose appropriate database technology as per application

CO3: Students will learn to design responsive web application

CO4: Students could design and implement scalable web application

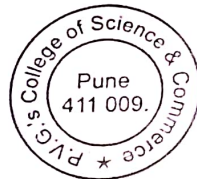## CS-511-MJP : Lab Course on CS-510-MJ (Advance Databases and Web Technologies)

Course Outcomes On Completion of this course, student will be able to –

CO1: Students will get knowledge of advance database technology

CO2: Students will be able to choose appropriate database technology as per application

CO3: Students will learn to design responsive web application

CO4: Students could design and implement scalable web application

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CS-512-MJ : Cloud Computing

Course Outcomes On Completion of this course, student will be able to –

CO1: To understand the principles of cloud computing

CO2: To understand the importance of virtualization and how it has helped the development of cloud computing.

CO3: To understand the concept of cloud security.

CO4: To design and deploy cloud infrastructure.

CO5: To understand the concept of edge computing

CS-513-MJP: Lab Course on CS-512-MJ (Cloud Computing)

Course Outcomes On Completion of this course, student will be able to –

CO1: To understand the principles of cloud computing

CO2: To understand the importance of virtualization and how it has helped the development of cloud computing.

CO3: To understand the concept of cloud security.

CO4: To design and deploy cloud infrastructure.

CS-514-MJ : C# .NET Programming

Course Outcomes On Completion of this course, student will be able to –

CO1:Understand the features of Dot Net Framework along with the features of C#
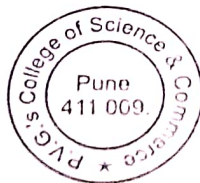
CO2: Interpret and Develop Interfaces for real-time applications.

CO3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in C# programming language.

CO4: Design & Implement the application using multithreading & File handling

CO5: Design and Implement Windows Application using Windows Forms & tools application using Database in C#

CO6: Design and Implement Custom Application Using Windows Form & ADO.NET in C#

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CS-515-MJP : Lab Course on CS-514-MJ (C# .NET Programming)

Course Outcomes On Completion of this course, student will be able to –

CO1: Understand the features of Dot Net Framework along with the features of C#

CO2: Interpret and Develop Interfaces for real-time applications.

CO3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in C# programming language.

CO4: Design & Implement the application using multithreading & File handling

CO5: Design and Implement Windows Application using Windows Forms & tools application using Database in C#

CO6: Design and Implement Custom Application Using Windows Form & ADO.NET in C#

CS-531-RM : Research Methodology

Course Outcomes On Completion of this course, student will be able to –

CO 1. Understand of the fundamental concepts of research, including the research process, research questions, hypotheses, and variables.

CO 2. Conduct a comprehensive literature review to identify relevant studies, synthesize existing knowledge, and identify research gaps.

CO 3. Identify research problems, formulate research questions, and design appropriate methodologies to address these problems

CO 4. Identify and select appropriate research designs, such as experimental, observational, survey, qualitative, or mixed-methods, based on the research objectives.
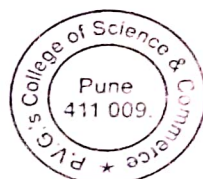
CO 5. Apply appropriate data analysis methods, including statistical techniques or qualitative analysis, to draw meaningful conclusions from research data.

CO 6. Develop a well-structured research proposal, outlining research questions, methodology, expected outcomes, and a rationale for the study.

CO 7. Communicate research findings effectively through written reports, presentations, and academic papers.

CO 8. Gain an appreciation for the importance of research in contributing to the advancement of knowledge in their field of study and broader society.

CO 9. Understand the principles of research ethics and integrity and apply them in their research.

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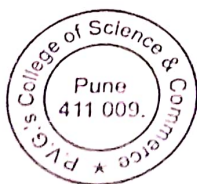
CS-551- MJ : Design and Analysis of Algorithms

Course Outcomes On Completion of this course, student will be able to –

CO1: Analyze worst-case running times of algorithms using asymptotic analysis.

CO2: Compare between different data structures. Pick an appropriate data structure for a design situation.

CO3: Ability to design algorithms using standard paradigms like: Greedy, Divide and Conquer, Dynamic Programming and Backtracking.

CO4: Able to Explain the major graph algorithms and Employ graphs to model engineering problems, when appropriate.

CO5:Able to Compare between different data structures and pick an appropriate data structure for a design situation.

CS-552-MJ : Mobile App Development Technologies

Course Outcomes: On Completion of this course, student will be able –

CO 1. To provide students with a solid understanding of the mobile app development, Android operating system, its architecture, components, and the software development kit (SDK).

CO 2. To teach students how to build Android applications from scratch, including UI design, handling user interactions, and integrating various features.

CO 3. To learn about Android's UI components, layouts, and design principles to create visually appealing and user-friendly interfaces.

CO 4. To know various methods of data storage in Android applications, such as using SQLite databases, shared preferences, and cloud-based solutions.

CO 5. To empower students to independently design, develop, and deploy their Android applications using advanced android tools.

CO 6. To understand how to utilize built-in sensors and hardware components on Android devices, such as GPS, accelerometer, Bluetooth, WiFi, Media Player and Camera, in their applications.

CO 7. To Get knowledge of Phone Gap Programming

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CS-553-MJ: Software Project Management

Course Outcomes

CO1: Learn the skills that are required to ensure successful medium and large scale software projects.

CO2: Examine Requirements Elicitation, Project Management, Verification &Validation and Management of Large Software Engineering Projects.

CO3: Get knowledge to select and apply project management techniques for process modeling, planning, estimation, process metrics and risk management.

CO4: Understand the concepts, skills, tools, and techniques of software project management.

CS-554-MJP : Lab Course on CS-551-MJ (Design and Analysis of Algorithms)

Course Outcomes

CO1: Analyze worst-case running times of algorithms using asymptotic analysis.

CO2: Compare between different data structures. Pick an appropriate data structure for a design situation.

CO3: Ability to design algorithms using standard paradigms like: Greedy, Divide and Conquer, Dynamic Programming and Backtracking.

CO4: Able to Explain the major graph algorithms and Employ graphs to model engineering problems, when appropriate.

CO5: Able to Compare between different data structures and pick an appropriate data structure for a design situation.

CS-555-MJP: Lab Course on CS-552-MJ (Mobile App Development Technologies)

Course Outcomes

CO 1. To teach students how to build Android applications from scratch, including UI design, handling user interactions, and integrating various features.

CO 2 To learn about Android's UI components, layouts, and design principles to create visually appealing and user-friendly interfaces.

CO 3. To empower students to independently design, develop, and deploy their Android applications using advanced android tools.

CS-560-MJ: Full Stack Development-I

Course Outcomes

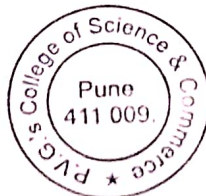CO1: Learn about the benefits of using MEAN stack and how to install and configure it

CO2: Learn advanced ES6 features in JavaScript and Typescript

CO3: Learn about Angular architecture, components, directives, pipes, forms, routing, and services.

CO4: Learn about the event loop, asynchronous programming, modules, packages, and streams.

CO5: Learn about the MVC pattern, routing, HTTP requests and responses, middleware, and error handling.

CO6: Create a full-stack MEAN stack application and deploy it to a production/local server.

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CS-561-MJP : Lab Course on CS-560-MJ (Full Stack Development-I)

Course Outcomes

- CO1: Describe appropriate uses for JavaScript and PHP
- CO2: Discuss, create, and debug semantically correct basic examples of dynamic web pages
- CO3: Construct individual components and entire applications using ReactJS
- CO4: Build an interactive web page using ReactJS

CS-562-MJ : Web Services

Course Outcomes

CO1: Understand the web services and SOA

CO2: Understand Web Services Architecture.

CO3: Understand the working of SOAP and developing SOAP Web Services using Java.

CO4: To get acquainted with the details of web services technologies like WSDL, UDDI.

CO5: To understand the concept of RESTful services.

CS-563-MJP : Lab Course on CS-562-MJ (Web Services)

CO1: Understand the web services and SOA

CO2: Understand Web Services Architecture.

CO3: Understand the working of SOAP and developing SOAP Web Services using Java.

CO4: To get acquainted with the details of web services technologies like WSDL, UDDI.
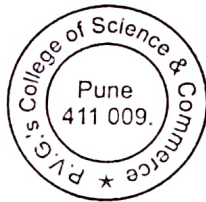
CO5: To understand the concept of RESTful services.

CS-564-MJ : ASP .NET Programming

Course Outcomes

CO1:Understand the features of Dot Net Framework along with the features of ASP

CO2: Interpret and Develop Interfaces for real-time applications.

CO3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in ASP programming language.

CO4: Design & Implement the application using multithreading & File handling

CO5: Design and Implement Windows Application using Windows Forms & tools application using Database in ASP

CO6: Design and Implement Custom Application Using Windows Form & ADO.NET in ASP

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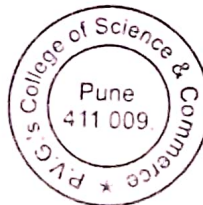## CS-565-MJP : Lab Course on CS-564-MJ (ASP .NET Programming)

Course Outcomes

CO1:Understand the features of Dot Net Framework along with the features of ASP

CO2: Interpret and Develop Interfaces for real-time applications.

CO3: Design & implement Object Oriented Programming concepts like Inheritance and Polymorphism in ASP programming language.

CO4: Design & Implement the application using multithreading & File handling

CO5: Design and Implement Windows Application using Windows Forms & tools application using Database in ASP

CO6: Design and Implement Custom Application Using Windows Form & ADO.NET in ASP

CS-581- OJT : On Job Training (Internship)

Course Outcomes On Completion of this course, student will be able to –

CO1: Enhance the knowledge related to various tools and technologies used in industry

CO2: Improve the ability to solve complex problems independently and creatively

CO3: Effectively utilize critical thinking and analytical skills in tackling real world challenges

CO4: Effectively communicate and collaborate skills through interaction with team members and mentors.

CO5: Get an experience in working on projects or related working within industry

CO6: Develop the ability to document process, design, implementation and testing

CO7: Familiar with specific industry domain relevant to internship

CO8: Complete projects and tasks as per the predetermined objectives

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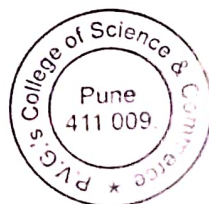
B Sc Animation

Course Outcome

• Students will have a comprehensive understanding of the history, techniques, and principles of animation.

• Students will be proficient in using animation software and hardware tools for both 2D and 3D animation production.

• Students will be able to apply animation principles effectively to create compelling character animations and dynamic environments and develop storyboard animation sequences, incorporating audio elements and utilizing various camera angles and shot compositions.

• Students will gain appreciation for the interdisciplinary nature of animation, integrating elements from art, design, and storytelling into their animation projects.

• Students will develop critical thinking and analytical skills through the study and analysis of classic and contemporary animation films.

• Students will be prepared to pursue further studies or careers in animation, film production, game design, or related fields.

Program Outcome

To explore the history of animation globally and on a national level and the contributions of different countries and people in it.

• To familiarize themselves with terminology commonly used in the animation industry and the different fields in it and to learn various software and hardware used for it.

• Students will learn and apply fundamental animation principles, importance of audio elements and to study human and animal anatomy and layout design, to create visually compelling visuals for their animations.

• To develop skills in creating storyboards, and other various art forms which enhance storytelling and visual appeal.

• To analyze and appreciate classic animated films, analyzing their techniques, storytelling, and visual style to gain inspiration and insight for their own animation projects

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Title of the Course: Basics of Animation

Course Outcomes:-

• Students will have a comprehensive understanding of the history, techniques, and principles of animation.
• Students will be proficient in using animation software and hardware tools for both 2D and 3D animation production.
• Students will be able to apply animation principles effectively to create compelling character animations and dynamic environments and develop storyboard animation sequences, incorporating audio elements and utilizing various camera angles and shot compositions.
• Students will gain appreciation for the interdisciplinary nature of animation, integrating elements from art, design, and storytelling into their animation projects.
• Students will develop critical thinking and analytical skills through the study and analysis of classic and contemporary animation films.
• Students will be prepared to pursue further studies or careers in animation, film production, game design, or related fields.

Title of the Course: : Lab Course on ANM-101-T

Course Outcomes:- Student will be able to:-

• Identify and apply the 12 Animation Principles through Digital Animation.
• Understand timing and motion through key-frames, holds and in-betweens
• Demonstrate skills in the use of industry standard tools

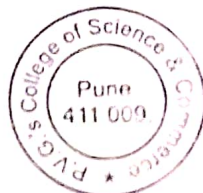## Title of the Course: Foundation of Art

Course Outcomes:- Student will be able to:-

• Could you please summarize the fundamental principles of drawing and handling
• Materials, emphasizing the significance of design elements? Additionally, could you
• Provide an example of how to apply one to two-point perspective in drawing.
• Discuss the principles of color theory and color harmony in drawing and sketching.
• Demonstrate rendering techniques with suitable styles and proportions.

Title of the Course: Lab Course on ANM-103-T

Course Outcomes:- Student will be able to:-

• Could you please summarize the fundamental principles of drawing and handling
• Materials, emphasizing the significance of design elements? Additionally, could you
• Provide an example of how to apply one to two-point perspectives in drawing.
• Discuss the principles of color theory and color harmony in drawing and sketching.
• Demonstrate rendering techniques with suitable styles and proportions.

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Title of the Course: ANM105 S3 Vector Design (Illustrator)

Course Outcomes:- Student will be able to:-

• Recall theoretical knowledge of print and digital media.
• Explain various concepts of digital art.
• Illustrate the usage of various tools for Vector graphic software.
• Identify various points of raster designing and vector art style.
• Compare Concept Art and Fantasy Art while converting from paper to digital format.
• Understanding of various photo editing techniques, including color correction, retouching, cropping, and resizing.

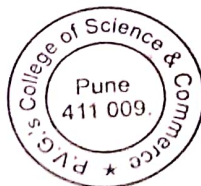## Title of the Course: Lab Course on ANM-105-T

Course Outcomes:- Student will be able to:-

• Recall theoretical knowledge of print and digital media.
• Explain various concepts of digital art.
• Illustrate the usage of various tools for Vector graphic software.
• Identify various points of raster designing and vector art style.
• Compare Concept Art and Fantasy Art while converting from paper to digital format.
• Understanding of various photo editing techniques, including color correction, retouching, cropping, and resizing.

Title of the Course: Basics of Digital Photography and Film Making

Course Outcomes:

• Creative Expression: Students will develop a personal style and aesthetic in their photography and filmmaking, effectively utilizing composition, lighting, and framing techniques to convey emotion, mood, and narrative.
• Problem-Solving Skills: Students will be able to identify and address technical challenges in photography and filmmaking, such as exposure issues, lighting problems, and composition dilemmas, through critical thinking and creative problem-solving.
• Portfolio Development: Students will compile a portfolio of their own photographic and cinematic work, showcasing their technical skills, creative vision, and ability to effectively communicate ideas through visual media.
• Critical Analysis: Students will critically analyze and evaluate their own work and the work of others, providing constructive feedback and identifying areas for improvement in terms of technical execution, creativity, and storytelling effectiveness.

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Title of the Course: Character Design

Course Outcomes:-

- Mastery of character design principles.
- Creation of original characters for animation.
- Proficiency in traditional and digital design techniques.
- Adaptation of designs to animation requirements.
- Development of a professional character design portfolio.

SEMESTER II
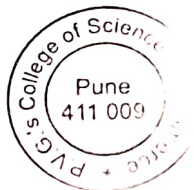
Title of the Course: Digital Graphics (Photoshop)

Course Outcomes:- Student will be able to:-

- Recall theoretical knowledge of print and digital media.
- Explain various concepts of digital art.
- Illustrate the usage of various tools for raster graphic software.
- Identify various points of raster designing and vector art style.
- Compare Concept Art and Fantasy Art while converting from paper to digital format.
- Understanding of various photo editing techniques, including color correction, retouching, cropping, and resizing.

Title of the Course: Lab Course on ANM-151-T

Course Outcomes:- Student will be able to:-

- Adjust scanned or digital camera images for better screen display or printing. Photoshop lets you easily change the file format of graphical images to use as email attachments, on Web pages, or in printed documents such as brochures and newsletters.
- Edit photographs, especially those taken with a digital camera or digitized with a scanner. Photoshop becomes an electronic darkroom. On the left, you can see the original digital photograph of the Golden Gate Bridge, taken by Lorene Romero. The right side shows the same photograph with a quick Photoshop edit.
- Restore old and/or damaged photographs. The original 1921 photo, on the left, was scanned into Photoshop, restored, and colorized. You will learn to do this before the course is over.
- Modify images or start from scratch to create original artwork. Photoshop becomes an electronic playroom both for painting with pixels as well as for working with scalable objects like lines, shapes, and text. This cat face artwork was done by Nicholas Ogg.

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Title of the Course: Print Design (InDesign)

Course Outcomes:

- Proficiency: Master InDesign's tools for print and digital media.
- Design Skills: Learn typography, color theory, and layout composition.
- Efficiency: Work faster with shortcuts and best practices.
- Portfolio: Build a showcase of your design work.
- Collaboration: Utilize collaboration features for teamwork.
- Certification: Gain recognition with Adobe certifications.
- Career: Access roles in design, marketing, and publishing

Title of the Course: Lab course on ANM-153-T

Course Outcomes:

- Proficient layout design for print and digital media.
- Mastery of InDesign's formatting, image import, and layout tools.
- Versatile project creation including flyers, brochures, and eBooks.
- Seamless integration of typography and graphics.
- Preparation for careers with a diverse design portfolio.

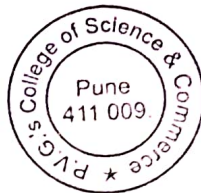## Title of the Course: Production Process

Course Outcomes:- Student will be able to:-

- Describe the working of stop motion industry.
- Differentiate techniques between cut-out animation and claymation.
- Classify armature and miniature modelling.
- Explain the process of handling materials for clay modelling and cutout animation.
- Review the techniques of tool handling.

Title of the Course: Lab Course on ANM-155-T

Course Outcomes:- Student will be able to:-

- Describe the working of stop motion industry.
- Differentiate techniques between cut-out animation and claymation.
- Classify armature and miniature modelling.
- Explain the process of handling materials for clay modelling and cutout animation.
- Review the techniques of tool handling.

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Title of the Course: Print Design (InDesign)

Course Outcomes:

- Proficiency: Master InDesign's tools for print and digital media.
- Design Skills: Learn typography, color theory, and layout composition.
- Efficiency: Work faster with shortcuts and best practices.
- Portfolio: Build a showcase of your design work.
- Collaboration: Utilize collaboration features for teamwork.
- Certification: Gain recognition with Adobe certifications.
- Career: Access roles in design, marketing, and publishing

Title of the Course: Lab course on ANM-153-T

Course Outcomes:

- Proficient layout design for print and digital media.
- Mastery of InDesign's formatting, image import, and layout tools.
- Versatile project creation including flyers, brochures, and eBooks.
- Seamless integration of typography and graphics.
- Preparation for careers with a diverse design portfolio.

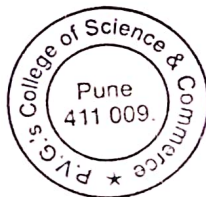## Title of the Course: Production Process

Course Outcomes:- Student will be able to:-

- Describe the working of stop motion industry.
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- Classify armature and miniature modelling.
- Explain the process of handling materials for clay modelling and cutout animation.
- Review the techniques of tool handling.

Title of the Course: Lab Course on ANM-155-T

Course Outcomes:- Student will be able to:-

- Describe the working of stop motion industry.
- Differentiate techniques between cut-out animation and claymation.
- Classify armature and miniature modelling.
- Explain the process of handling materials for clay modelling and cutout animation.
- Review the techniques of tool handling.

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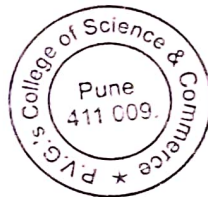## Title of the Course: Basics of Image Editing and Video Editing

Course Outcomes:

• Students will demonstrate proficiency in using software such as Adobe Photoshop, Adobe Premiere Pro, or similar tools for editing photos and videos.
• Students will be able to apply basic editing techniques such as cropping, color correction, and image manipulation to enhance the visual quality of photos and videos.
• Students will understand the principles of composition, lighting, and visual aesthetics, and apply them effectively in their editing projects.
• Students will be able to create cohesive narratives and convey emotions through editing choices in both photos and videos.
• Students will develop a portfolio of edited photos and videos showcasing their technical skills and creative vision.
• Students will participate in peer critiques and provide constructive feedback on their classmates' work.
• Students will demonstrate the ability to adapt to new editing challenges and incorporate feedback to improve their editing skills.

Title of the Course: Digital Photography

Course Outcomes:

• Creative Expression: Students will develop a personal style and aesthetic in their photography and filmmaking, effectively utilizing composition, lighting, and framing techniques to convey emotion, mood, and narrative.
• Problem-Solving Skills: Students will be able to identify and address technical challenges in photography and filmmaking, such as exposure issues, lighting problems, and composition dilemmas, through critical thinking and creative problem-solving.
• Portfolio Development: Students will compile a portfolio of their own photographic and cinematic work, showcasing their technical skills, creative vision, and ability to effectively communicate ideas through visual media.
• Critical Analysis: Students will critically analyze and evaluate their own work and the work of others, providing constructive feedback and identifying areas for improvement in terms of technical execution, creativity, and storytelling effectiveness.

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Class: F.Y.B.Com. Sem-I

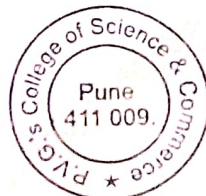### Four Year B.Com Degree Program As per National Education Policy-2020
Bcom

Course Outcome

1) To provide students with a strong foundation in financial and cost accounting principles, enabling them to understand, prepare, and interpret financial statements accurately.

2) To equip students with mathematical and statistical skills relevant to commerce, enabling them to solve complex problems and analyze data for decision-making.

3) To develop students' effective communication skills for diverse business contexts, with an emphasis on clarity, professionalism, conflict resolution, and cultural sensitivity.

4) To enhance students' English language proficiency for academic and professional purposes, including reading, writing, and speaking, while using standard grammar and vocabulary.

5) To cultivate students' understanding of environmental issues and their implications for business decisions and sustainability.

6) To provide students with a comprehensive understanding of cost and management accounting principles, enabling them to calculate costs, apply cost accounting techniques, and optimize financial management.

7) To equip students with an advanced understanding of financial accounting principles, standards, and regulations, enabling them to analyze complex transactions and prepare financial reports.

8) To enable students to apply economic principles to business decisions, evaluate economic factors, and make suitable economic decisions.

9) To provide students with an understanding of international accounting standards and tax regulations, enabling them to navigate complex international financial transactions.

10) To equip students with advanced management accounting techniques, allowing them to analyze cost and performance data, develop budgets, and enhance organizational competitiveness.

11) To instill ethical conduct and professionalism in students, emphasizing accuracy, integrity, confidentiality, and ethical communication in accounting and business practices.

Program Outcomes:

1. **Accounting Proficiency**: a) Graduates will demonstrate a fundamental understanding of financial, cost, and management accounting principles and practices. b) They will have the ability to prepare and interpret financial and cost statements accurately. c) Graduates can apply accounting concepts to record business transactions and analyze financial data effectively.

2. **Mathematical and Statistical Analysis**: a) Graduates will acquire proficiency in mathematical and statistical concepts and techniques relevant to business applications. b) They can solve mathematical problems related to commerce and economics, applying quantitative methods for

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business decisions. c) They will develop skills in collecting, analyzing, and interpreting data, using statistical software and tools for solving business problems.

Technology and Computerized Accounting: a) Graduates will master the use of accounting software for efficient and accurate financial data management. b) They can create, manage, and analyze financial records using computerized accounting systems. c) They understand the importance of data security and integrity in computerized accounting.

4. **Communication Skills:** a) Graduates will develop effective communication skills for various business contexts, including written and oral communication. b) They will be able to present ideas and information clearly and professionally. c) Graduates can resolve conflicts through effective communication and understand the importance of cultural sensitivity in business communication.

5. **Language Proficiency:** a) Graduates will enhance English language proficiency for academic and professional purposes, including reading, writing, and speaking. b) They can communicate fluently and accurately in written and spoken English. c) Graduates will apply English language skills effectively in business and academic contexts, using standard grammar and vocabulary

6. **Environmental Awareness:** a) Graduates will understand environmental issues and their impact on business and society. b) They can analyze environmental factors affecting business decisions and sustainability. c) They will be able make decisions related to environmental responsibility in business.
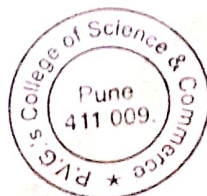
7. **Specialized Accounting Knowledge:** a) Graduates will develop a solid foundation in cost and management accounting principles. b) They can calculate and analyze various costs involved in business operations and apply cost accounting techniques. c) Graduates will gain expertise in anced cost and management accounting for strategic decision-making.

8. **Financial Reporting and Analysis:** a) Graduates will gain an advanced understanding of financial accounting principles, standards, and regulations. b) They will be able to analyze complex financial transactions, prepare financial statements, and interpret them for stakeholders and investors. c) Graduates will apply accounting standards and principles for financial reporting in various business contexts.

9. **Economic Analysis and Decision-Making:** a) Graduates will understand economic principles and their application in business. b) They can analyze economic factors affecting business decisions and evaluate economic policies' impact on the business environment. c) Graduates will be able to apply economic principles for business strategy and development.

10. **International Accounting and Taxation:** a) Graduates will have an understanding of international accounting standards and their application. b) They can navigate complex tax laws and regulations effectively for businesses and individuals. c) Graduates will provide specialized tax advice for international and cross-border transactions.

11. **Management Accounting and Strategic Decision-Making:** a) Graduates will apply advanced management accounting techniques for strategic decision making. b) They can analyze cost and performance data to optimize organizational efficiency and develop budgets and forecasts to support organizational goals. c) Graduates will implement management accounting practices to enhance organizational competitiveness.

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(Formerly PVG's College of Science)

(Accredited by NAAC)

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12. **Ethics and Professionalism:** a) Graduates will demonstrate ethical conduct in accounting and business practices, adhering to professional standards and regulations. b) They will prioritize accuracy, integrity, and confidentiality in financial reporting and data management. c) Graduates will communicate ethical principles in business relationships and decision making.

Subject: Financial Accounting-I

Course Outcomes

1) To understand the concepts of the Financial Accounting.

2) To apply the knowledge of Partnership Accounts, AS, Ind AS, Lease, Hire Purchase and Royalty for accounting.

3) To analyse the effects of accounting treatments of Partnership Accounts, AS, Ind AS, Lease, Hire Purchase and Royalty.

4) To evaluate the impact of accounting treatments of Partnership Accounts, AS, Ind AS, Lease, Hire Purchase and Royalty on financial aspects.

5) To create an independent accounting of the financial transactions pertaining to Partnership Accounts, AS, Ind AS, Lease, Hire Purchase and Royalty. 6) To remember the accounting treatment of Partnership Accounts, AS, Ind AS, Lease, Hire Purchase and Royalty.

Subject: Basics of Cost & Management Accounting and Material Accounting-I
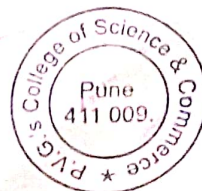
Course Outcome: After Completion of the course, student will be able:

1. To remember the basic concepts related to Cost and Management Accounting.

2. To understand the application of cost concepts and relevant cost accounting standards on material.

3. To apply the basis of classification of cost in preparation of Cost Sheet, Estimated Cost Sheet, Tender and Quotation.

4. To analyse the cost performance of a business entity with the help of Cost Sheet and material issuing prices.

5. To evaluate the performance with the help of Price List, Estimates, Tenders and Quotations as well as Landed Cost

Subject: Modern Office Management-I

Course Outcomes:

1. Students will be able to understand the concepts of modern automated offices.

2. They will learn the conceptions of office work low and importance of office layout.

3. They will grasp the knowledge of modern technology used in offices.

4. They will understand the need and utility of standard office procedures.

5. They will understand office manuals and its importance. Need and requirements of standard operating procedures will be understood by students.

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Subject: Business Environment and Entrepreneurship-I

Course Outcomes:

1. Students will be able to understand the concept and importance of entrepreneur and entrepreneurship.

2. They will learn various types of entrepreneurs, qualities, growth of entrepreneurship.

3. They will grasp the knowledge of factors affecting the growth of entrepreneurship.

4. They will understand the various programmes of entrepreneurship development.

5. They will learn women entrepreneur concept and problems, Business Environment.

Subject: Introduction to Behavioural Economics

Course Outcomes: After completion of the course, students will be able:

1. The students will be able to the Comprehend the Origin of economics.
2. Understand the importance of Indian Knowledge System related to economics
3. Explore the interdisciplinary approach to economics.
4. Understand the concepts, theory and Laws of Microeconomics. 5. Solve simple mathematical equations related to economics.

Subject: Business Accounting-I

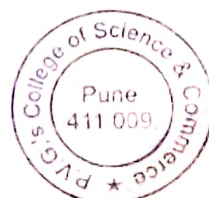Course Outcomes: After completion of the course, students will be able:

1. To understand the accounting principles, concepts, conventions, and partnership accounts.
2. To apply accounting principles, concepts, conventions, and partnership accounts for accounting treatment.
3. To analyse the effects of accounting treatments.
4. To evaluate the impact of accounting treatments.
5. To create an independent accounting of the financial transactions.
6. To remember the accounting principles, concepts, conventions, and partnership accounts.

Subject: Mastering English for Professional Purposes-I

Course Outcomes:

1. Students understand the importance of communication and the consequent competence required for it.
2. Students learn the basics of communication
3. Students acquire the necessary skills components of communication
4. Students become confident about communication through rigorous exercise
5. Students become competent in communication
6. Students realize that literary pieces are very good examples of effective communication.

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Class: F.Y.B.Com. Sem-II

Subject: Financial Accounting-I

Course Outcome:

1. To make students understand the concepts of the Financial Accounting.
2. To impart the knowledge of Partnership Accounts, AS, Ind AS, Lease, Hire Purchase and Royalty.
3. To make accounting treatment of Partnership Accounts, Lease, Hire Purchase and Royalty.
4. To teach the utility and practical use of Partnership Accounts, Lease, Hire Purchase, Royalty and Accounting Standards.

Subject: Cost and Management Accounting –II

Course Outcome:

CO1 To Remember The concepts related to Material, Labour as an element of cost.
CO2 To Understand Various techniques of Material (Inventory) cost control and Labour cost control.
CO3 To Apply The Stores related documents and payroll system.
CO4 To Analyse Inventory, Labour and Overhead cost. CO5 To Evaluate The effectiveness of various techniques under Material , Labour and Overhead Accounting

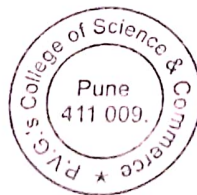## Subject: Principles and Functions of Management

Course Outcomes:

1. Students will be able to understand the importance of management and its evolution process in detail.
2. Students will learn various functions of management and their applicability.
3. Students will have strong foundation in understanding management at work.
4. They will be able to understand various tools and techniques used to perform managerial jobs. 5. Students will analyse the importance of motivation and team work.

Subject: Start up and Insurance Law – II

CO1: Understand conceptual Framework of Start-up and Insurance and basic Principles of insurance
CO2: Define and identify the facets and legal aspects of start-ups and various kinds of insurances and insurance contracts.
CO3: Understand and acquaint with the laws relating to start up and Insurance and their significance and features.

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Subject: Market Structure and Welfare Economics

Course Outcomes:

1. Understand perfect and imperfect market structure,
2. Understand Indian Knowledge System related to competitive market structure
3. Explore the relationship between micro economics and welfare economics
4. Understand measures of microeconomic concepts and theory. 5. Solve simple case studies related to imperfect market.

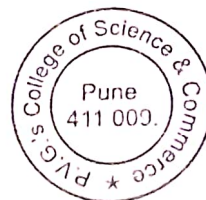## Subject: Business Accounting-II

Course Outcomes:

1. To understand the concepts, meaning, fundamental principles, types, and legislation in India and Maharashtra of Co-Operation, and meaning and classification of branches.
2. To apply concepts of Co-Operation and Classification of Branches for accounting treatment
3. To analyze the financial statements and ledgers.
4. To evaluate the impact of accounting treatments.
5. To create an independent accounting of the financial transactions.
6. To remember the concept of Co-Operation and Branch.

Subject: Constitutional Values, Fundamental Duties and Political System in India-II

Course Outcome

CO 1. Understand the process of making of Constitution and its features.

CO 2. Appreciate the Constitutional values and understand the importance of fundamental duties enshrined in the Constitution of India

CO 3. Understand the dynamics of the political System in India, recent trends, challenges and cleavages of the Indian political system so as to get inspiration to cherish the values embedded in the Constitution

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Bachelor of Business Administration (BBA)

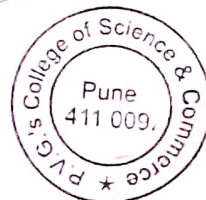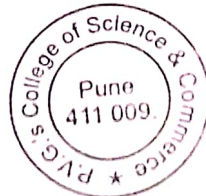### Revised Curriculum (2024 Pattern as per NEP-2020)
w.e.f. Academic Year: 2024-2025
Bachelor of Business Administration in International Business (BBA - IB)

Course Outcome

1. To equip students with a comprehensive understanding of core business principles, including management, finance, marketing, human resource management, and operations.

2. To foster the ability to analyse business problems, develop strategic solutions, and make informed decisions using critical thinking and analytical skills.

3. To provide hands-on experience through practical sessions, projects, internships, and case studies to apply theoretical knowledge in real-world business scenarios.

4. To improve written and verbal communication skills essential for professional business environments, including report writing, presentations, and interpersonal communication.

5. To instil leadership qualities and teamwork skills, preparing students to lead and collaborate effectively in diverse business settings.

6. To incorporate modern technological tools and practices in business operations, including computer applications, IT for business, and AI/ML for business.

7. To promote ethical business practices, corporate social responsibility, and environmental awareness to ensure graduates act with integrity and social responsibility.

8. To offer a range of elective courses to provide a broad perspective on business issues, integrating knowledge from various disciplines like economics, law, and management.

9. To equip students with the skills and knowledge required for successful careers in management, entrepreneurship, finance, marketing, and other business-related areas.

10. To lay a strong foundation for those who wish to pursue higher studies in business and management.

11. To encourage a mindset of continuous learning and adaptability to stay current with business trends, technological advancements, and evolving market conditions.

12. To nurture entrepreneurial thinking and skills, preparing students to identify opportunities, develop business plans, and launch and manage their own ventures.

13. To foster critical thinking skills to identify, analyze, and solve complex business problems innovatively and efficiently.

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Program Outcomes:

1. Graduates will have a thorough understanding of fundamental business principles, including management, finance, marketing, and human resources.

2. Graduates will be able to analyze business problems, develop strategic plans, and make data-driven decisions to address complex business challenges.

3. Graduates will demonstrate the ability to apply theoretical knowledge to practical situations through hands-on projects, internships, and real-world case studies.

4. Graduates will possess strong written and verbal communication skills, essential for business reporting, presentations, and professional interactions.

5. Graduates will exhibit leadership qualities and the ability to work effectively in teams, contributing to collaborative efforts and leading projects.

6. Graduates will be adept at using modern business technologies and information systems, enhancing business operations and decision-making processes.

7. Graduates will understand and uphold ethical standards in business practices, demonstrating a commitment to corporate social responsibility and environmental sustainability.

8. Graduates will integrate knowledge from various disciplines, providing a holistic approach to solving business problems and making informed decisions.

9. Graduates will be well-prepared for professional careers in management, finance, marketing, entrepreneurship, and other business fields, equipped with the necessary skills and knowledge.

10. Graduates will have a commitment to continuous learning and professional development, staying current with industry trends, technological advancements, and evolving market conditions.

11. Graduates will demonstrate entrepreneurial skills, including the ability to identify opportunities, develop business plans, and manage new ventures.

12. Graduates will possess strong critical thinking abilities, enabling them to identify, analyze, and solve complex business problems with innovative and effective solutions.

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Semester I
Subject:-Principles of Management

Course Outcome

CO1 Express themselves effectively in routine and special real business interactions and principles of management

CO2 Demonstrate appropriate use of administration, management.

CO3 Ability to organize various programs, meetings and events

CO4 Apprise the pros and cons of major managerial functions

CO5 Create and deliver effectiveness of quality management

Subject:-Principles of Finance

Course Outcome

CO1 Remembering traditional, modern, role of finance manager remembering

CO2 Understand the sources of Finance, recent trends in business finance Understanding

CO3 Identify the capital structure and factors affecting capital structure Applying

CO4 Analyzing the difference between shares, debentures Analyzing

CO5 Evaluate consequences of over- capitalization and Under Capitalization

Subject:-Principles of Human Resource Management

Course Outcome

CO1 Remembering traditional, modern, role of HR manager

CO2 Understand the sources of acquiring human resources

CO3 Identify the skills of HR Manager

CO4 Analyzing the difference between Personnel and HRM

CO5 Evaluate career planning process

Subject:-Information Technology for Business

Course Outcome:

CO1 Understand the evolution of IT and it use in Business

CO2 Understand the basics of e-commerce

CO3 Understand advanced IT tools used in business
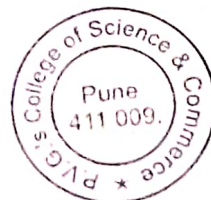
Subject: Business Communication Skills-I

Course Outcome:

CO1 To understand the concept, process, and importance of communication

CO2 To apply gain knowledge of media of communication in businesses

CO3 To develop skills of effective communication - both written and oral.

Subject:- Environmental Awareness

Course Outcome:

CO1 To understand Environmental pollution

CO2 To apply and promote green practices at home and at work

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