Janata Mahavidyalaya, Chandrapur
Course: M.Sc. (Computer Science)
Program Outcomes (PO)

After completion of M.Sc. (C/S) the student will be able to-

PO1: Establish potential application of techniques developed within the chosen area of Specialization.

PO2: Communicate computer science concepts, designs, and solutions effectively and professionally.

PO3: Apply different Methods and tools for analyzing complex real-world problems and devise computer-based solutions.

PO4: receive new ideas and innovation.

PO5: Develop special expertise in the chosen special areas.

PO6: Apply research methods, techniques, and problem solving approaches from the field of research in which they are specializing.

PO7: Utilize the computing knowledge efficiently in projects with concern for societal, environmental, and cultural aspects.

Program Specific Outcomes (PSO)
Course: M.Sc. (Computer Science)

After completion of M.Sc. in computer science students will be able to-

PSO1: Understand, analyze and develop computer programs in the areas related to algorithms, system software, compiler design, web design, mobile computing and networking for efficient design of computer based system of varying complexity.

PSO2: Develop the ability to interpret the fundamental concepts and methodology of computer systems and understand the functionality of hardware and software aspects of computer system.

PSO3: Apply standard software engineering practices and strategies in software project development using open-source programming environment to deliver a quality for business success.

PSO4: acquaint with the contemporary issues, latest trends in technological development and thereby innovate new ideas and solutions to existing problems.

PSO5: develop ability to produce cost effective, quality and maintainable software products and solutions (services) meeting the global standards and requirements with the knowledge acquired and using the emerging techniques, tools and software engineering methodologies and principles and to comprehend and write effective project reports in multidisciplinary environment in the context of changing technologies.

Course Outcomes

Semester   : - I
Course Name: - Advanced Java   Course Code: - PSCSCT01   Paper – I

At the end of this course, the student will be able to:

	Course Outcome
CO1	Learn to design and implement programs in the Java programming language by making use of classes and objects.
CO2	Apply logical constructs for branching and loops as well as use iterator objects as per requirement.
CO3	Develop linked data structures such as lists and trees.
CO4	Become familiar with the use of input, output, and object stream objects and use such streams for file processing as well as client/server communications tasks.
CO5	Develop sophisticated, interactive user interfaces using the Java Swing class and appropriate layout managers.
CO6	Exposed to advanced topics including multithreading, internet networking, and JDBC database connectivity

Semester   : - I
Course Name: - Discrete Mathematics   Course Code: - PSCSCT02 Paper - II
At the end of this course, the student will be able to:

	Course Outcome
CO1	Write an argument using logical notation and determine if the argument is valid or not.
CO2	Demonstrate the ability to write and evaluate a proof or outline the basic structure of and give examples of each proof technique described.
CO3	Understand the basic principles of sets and operations in sets.
CO4	Apply counting principles to determine probabilities.
CO5	Demonstrate an understanding of relations and functions and be able to determine their properties.
CO6	Demonstrate different traversal methods for trees and graphs. And Model problems in Computer Science using graphs and trees

Semester   : - I
Course Name: - Data Warehouse & SQL: Course Code: - PSCSCT03   Paper - III
At the end of this course, the student will be able to:

	Course Outcome
CO1	Describe the fundamental concepts, benefits and problem areas associated with data ware housing.
CO2	Describe the various architectures and main components of a data warehouse.
CO3	Design a data warehouse, and be able to address issues that arise when implementing a data warehouse.
CO4	Compare and contrast OLAP and data mining as techniques for extracting knowledge from a data warehouse.
CO5	Learn mining and warehouse techniques through the use of different tools.

Semester   : - I
Course Name: -Scripting Language & Information Retrieval   Course Code: -
PSCSCT04   Paper - IV
At the end of this course, the student will be able:

	Course Outcome
CO1	To learn the fundamentals and classification of information retrieval system.
CO2	To demonstrate the query processing techniques and operations.
CO3	To compare the relevance of query languages for text and multimedia data.
CO4	To evaluate the significance of various indexing and searching techniques for information retrieval.
CO5	To develop an effective user interface for information retrieval.
CO6	Master an understanding of scripting and the contributions of scripting languages.

Semester   : - I
Course Name: - Practical-I (Practical based on PSCST01): Course Code: - PSCSCP01
At the end of this Practical, the student will be able:

Course Outcome #	Course Outcome
CO1	To Understand the structure of Java Programming and their Command.
CO2	To get the Knowledge of Creating Applet in Java Programming.
CO3	To get the Knowledge of Servlet in Java Programming.
CO4	To Understand the Networking in Java Programming.

CO5	To get the knowledge of creating different Apps in Java Programming.

Semester   : - I
Course Name: - Practical-II (Practical based on PSCST03 & PSCST04)
Course Code: - PSCSCP02

At the end of this Practical, the student will be able:

	Course Outcome
CO1	To Understand the Creating Database by using SQL.
CO2	To get the knowledge of manipulating command in database.
CO3	To understand the use in different types of query in Oracle.
CO4	To understand the PL/SQL Structure and write program in Oracle.
CO5	To understand the use of cursor and Trigger in PL/SQL.

Semester   : - I
Course Name: - Seminar
Course Code: - PSCSCS01

At the end of this Seminar, the student will be able:

	Course Outcome
CO1	To Improvement the Presentation Skills and Discussion Skills.
CO2	To Improvement the Listening Skills.
CO3	To Improvement the Argumentative Skills and Critical Thinking.
CO4	To understand the Questioning and Interdisciplinary Inquiry.
CO5	To get the Knowledge of the Studying Major Works.

Semester   : - II
Course Name: - Theory of Computation & System Programming
Course Code: - PSCSCT05   Paper – I

At the end of this course, the student will be able to:

	Course Outcome
CO1	Master regular languages and finite automata, context-free languages, push-down automata, and Turing recognizable languages.
CO2	Be exposed to a broad overview of the theoretical foundations of computer science.
CO3	Be familiar with thinking analytically and intuitively for problem-solving situations in related areas of theory in computer science.
CO4	Understand the basics of system programs like editors, compiler, assembler, linker, loader, interpreter and debugger.

CO5	Describe the various concepts of assemblers and macroprocessors.
CO6	To understand the various phases of compiler and compare its working with assembler.
CO7	To understand how linker and loader create an executable program from an object module created by assembler and compiler.

Semester   : - II

Course Name: - VB.NET : Course Code: - PSCSCT06 Paper - II

At the end of this course, the student will be able to:

	Course Outcome
CO1	Understand .NET Framework and describe some of the major enhancements to the new version of Visual Basic.
CO2	Describe the basic structure of a Visual Basic.NET project and use main features of the integrated development environment (IDE)
CO3	Create applications using Microsoft Windows Forms
CO4	Create applications that use ADO. NET.
CO5	Work with XML Documents.
CO6	Use Crystal Reports for displaying data in report format.

Semester   : - II

Course Name: - Web Technologies: Course Code: - PSCSCT07   Paper - III

At the end of this course, the student will be able:

	Course Outcome
CO1	To understand the general concepts of PHP scripting language for the development of Internet websites.
CO2	To understand the basic functions of MySQL database program.
CO3	To learn the relationship between the client side and the server side scripts.
CO4	To create a software application using the Python programming language.
CO5	To debug a software application written in the Python programming language.
CO6	To test a software application written in the Python programming language.

Semester   : - II

Course Name: -   Software Engineering: Course Code: - PSCSCT08   Paper - IV

At the end of this course, the student will be able:

	Course Outcome
CO1	To broaden knowledge of Software Process Models.
CO2	To gain practical experience in Requirements Engineering.

CO3	To gain practical experience in UML tools.
CO4	To do Case Study based on Software life cycle.
CO5	To develop, implement, and demonstrate the learning through a project that meet stated specifications.
CO6	To learn User Interface Design. Understand Software Cost Estimation and web engineering.

Semester   : - II
Course Name: - Practical-I (Practical based on PSCST06): Course Code: - PSCSCP03
At the end of this Practical, the student will be able:

	Course Outcome
CO1	To Understand the structure of VB.Net Programming and their Command.
CO2	To get the Knowledge of Computing Program by using VB.Net.
CO3	To get the Knowledge of develop the Project in VB.Net.
CO4	To Understand the Each Basic Command of VB.Net.
CO5	To get the knowledge of creating different types of program in VB.Net.

Semester   : - II
Course Name: - Practical-II (Practical based on PSCST07)
Course Code: - PSCSCP04
At the end of this Practical, the student will be able:

	Course Outcome
CO1	To Understand the Write PHP scripts to handle HTML forms.
CO2	To get the Knowledge of Create PHP programs that use various PHP library functions and that manipulate files and directories.
CO3	To Analyze and solve common Web application tasks by writing PHP programs.
CO4	To Analyze and solve various database tasks using the PHP language.

Semester   : - II
Course Name: - Seminar: Course Code: - PSCSCS02
At the end of this Seminar, the student will be able:

	Course Outcome
CO1	To Improvement the Presentation Skills and Discussion Skills.
CO2	To Improvement the Listening Skills.
CO3	To Improvement the Argumentative Skills and Critical Thinking.

CO4	To understand the Questioning and Interdisciplinary Inquiry.
CO5	To get the Knowledge of the Studying Major Works.

Semester   : - III
Course Name: - Software Testing Tools and Methodology
Course Code: - PSCSCT09   Paper – I
At the end of this course, the student will be able to:

	Course Outcome
CO1	Basic software debugging methods.
CO2	White box testing methods and techniques.
CO3	Black Box testing methods and techniques.
CO4	Designing test plans.
CO5	Different testing tools. Get familiar with open source tools
CO6	Quality Assurance models.

Semester   : - III
Course Name: - Soft Computing Techniques
Course Code: - PSCSCT10 Paper - II
At the end of this course, the student will be able:

	Course Outcome
CO1	To familiarize with soft computing concepts.
CO2	To introduce the fuzzy logic concepts, fuzzy principles and relations.
CO3	To Basics of ANN and Learning Algorithms.
CO4	ANN as function approximation.
CO5	Genetic Algorithm and its applications to soft computing.
CO6	Hybrid system usage, application and optimization.

Semester   : - III
Course Name: - Research Methodology and Operational Technique
Course Code: - PSCSCT11   Paper - III
At the end of this course, the student will be able to:

	Course Outcome
CO1	Understand some basic concepts of research and its methodologies.
CO2	Identify appropriate research topics.

CO3	Select and define appropriate research problem and parameters.
CO4	Prepare a project proposal to undertake a project.
CO5	Organize and conduct research advanced project in a more appropriate manner.
CO6	Write a research report and thesis.
CO7	Write a research proposal and perform various testing on the data.

Semester   : - III
Course Name: -   C#.NET: Course Code: - PSCSCT12   Paper - IV

At the end of this course, the student will be able:

	Course Outcome
CO1	Build web applications
CO2	Create web forms
CO3	Validate form data using server side Validation control
CO4	Create dynamic Web applications that interact with a database using server-side programming.
CO5	Use the development products of Microsoft Visual Studio.Net products to implement and connect the automated system to a database stored.
CO6	Link and publish Visual Studio.Net applications to reflect a web application

Semester   : - III
Course Name: - Practical-I (Practical based on PSCST09 & PSCST10)
Course Code: - PSCSCP05

At the end of this Practical, the student will be able:

	Course Outcome
CO1	To get the Knowledge of different Operation of Fuzzy Set and their use.
CO2	To understand the use of Neural Network and genetic Algorithms by using MATLAB.
CO3	To get the Knowledge of Various test processes and continuous quality improvement by using software Testing.
CO4	To get the Knowledge of Methods of test generation from requirements in Project.
CO5	To get the Knowledge of Test adequacy assessment using: control flow, data flow, and program mutations

Semester   : - III
Course Name: - Practical-II (Practical based on PSCST11 & PSCST12)

Course Code: - PSCSCP06

At the end of this Practical, the student will be able:

	Course Outcome
CO1	To Understand the basics of .net Frame work and C#. language
CO2	To get the Knowledge of Program by use interface and inheritance concepts in C#. language
CO3	To get the Knowledge of Program of window application programming.
CO4	To get the Knowledge of Program create a window application.
CO5	To get the Knowledge in Program develop web applications and learn advanced

Semester   : - III

Course Name: - Seminar: Course Code: - PSCSCS03

At the end of this Seminar, the student will be able:

	Course Outcome
CO1	To Improvement the Presentation Skills and Discussion Skills.
CO2	To Improvement the Listening Skills.
CO3	To Improvement the Argumentative Skills and Critical Thinking.
CO4	To understand the Questioning and Interdisciplinary Inquiry.
CO5	To get the Knowledge of the Studying Major Works.

Semester   : - IV:

Course Name: - Android Application Development: Course Code: - PSCSCT13

At the end of this course, the student will be able:

	Course Outcome
CO1	To gain knowledge of installing Android Studio and Cross Platform Integrated Development Environment.
CO2	To learn designing of User Interface and Layouts for Android App.
CO3	To learn how to use intents to broadcast data within and between Applications.
CO4	To use Content providers and Handle Databases using SQLite.
CO5	To introduce Android APIs for Camera and Location Based Service.
CO6	To discuss various security issues with Android Platform.

Semester   : - IV Paper – II
Course Name: - Digital and Cyber Forensics: Course Code: - PSCSCT14

At the end of this course, the student will be able:

	Course Outcome
CO1	To provide an understanding Computer forensics fundamentals
CO2	To analyze various computer forensics technologies
CO3	To provide computer forensics systems
CO4	To identify methods for data recovery.
CO5	To apply the methods for preservation of digital evidence.

Semester   : - IV; Paper - III
Course Name: - Web Designing Using Asp .Net: Course Code: - PSCSCT15

At the end of this course, the student will be able to:

	Course Outcome
CO1	Create a rich GUI for web based application using a rich set of controls.
CO2	Create secure (authentication and authorization) web applications Personalize a web page using Web Parts.
CO3	Create asynchronous web applications using ASP.NET AJAX.
CO4	Create and use web services.
CO5	Deploy web applications.

Semester   : - IV Paper – IV
Course Name: - Project   : Course Code: - PSCSCT16

At the end of this course, the student will be able to:

	Course Outcome
CO1	Collaborate and communicate with colleagues to cooperatively develop a substantial software system.
CO2	Elicit and document customer requirements and develop external interfaces that satisfy them.
CO3	Apply software architecture principles to divide the system into modules.
CO4	Implement, validate, and deploy software in a form useful to the customer.
CO5	Schedule intermediate milestones to plan and track progress through the development process.

Semester   : - IV: Course Code: - PSCSCP07
Course Name: - Practical-I (Practical based on PSCST13 & PSCST14)

At the end of this Practical, the student will be able to:

	Course Outcome
CO1	To get the Knowledge of Development of Mobile Educational Services Menus.
CO2	To get the Knowledge of Android's Development Environment.
CO3	To get the Knowledge of Storing and Retrieving Data in Android application.
CO4	To get the Knowledge of Graphics, Animation and Multimedia in android application.
CO5	To get the Knowledge of Networking and Web Services.

Semester   : - IV: Course Code: - PSCSCP08

Course Name: - Practical-II (Practical based PSCST15)

At the end of this Practical, the student will be able:

	Course Outcome
CO1	To get the Knowledge of able to design web applications using ASP.NET.
CO2	To get the Knowledge of able to use ASP.NET controls in web applications.
CO3	To get the Knowledge of able to debug and deploy ASP.NET web applications
CO4	To get the Knowledge of able to create database driven ASP.NET web applications and web services
CO5	To get the Knowledge use wed services by using ASP.NET.

Semester   : - IV

Course Name: - Seminar: Course Code: - PSCSCS04

At the end of this Seminar, the student will be able:

	Course Outcome
CO1	To Improvement the Presentation Skills and Discussion Skills.
CO2	To Improvement the Listening Skills.
CO3	To Improvement the Argumentative Skills and Critical Thinking.
CO4	To understand the Questioning and Interdisciplinary Inquiry.
CO5	To get the Knowledge of the Studying Major Works.