COURSE OUTCOMES

Course Code: PGCA1917

Course Name: Discrete Structures &Optimization

CO1 Apply the operations of sets and use Venn diagrams to solve applied problems; solve problems using the principle of inclusion-exclusion

CO2 Apply rules of inference, proof by contradiction, proof by cases, and write proofs using symbolic logic and Boolean Algebra

CO3 Solve counting problems by applying elementary counting techniques using the product and sum rules, permutations, combinations, the pigeon-hole principle.

CO4 Determine if a given graph is simple or a multigraph, directed or undirected, cyclic or acyclic, and determine the connectivity of a graph.

Course Code: PGCA1951

Course Name: Programming in Python

CO1 Familiar with Python environment, data types, operators used in Python.

CO2 Compare and contrast Python with other programming languages.

CO3 Learn the use of control structures and numerous native data types with their methods.

CO4 Design user defined functions, modules, and packages and exception handling methods.

CO5 Create and handle files in Python and learn Object Oriented Programming Concepts.

Course Code: PGCA1952

Course Name: Advanced Data Structures

CO1 Choose appropriate data structures and algorithms and use it to design solution for a specific problem.

CO2 Execute the operations of hashing to retrieve data from data structure.

CO3 Design and analyze programming problem statements

CO4 Come up with analysis of efficiency and proofs of correctness

CO5 Comprehend and select algorithm design approaches in a problem specific manner.

Course Code: PGCA 1953

Course Name: Advanced Database Management System

CO1 Express the basic concepts of DBMS and RDBMS.

CO2 Apply normalization theory to the normalization of a database CO3 Apply the concept of Transaction Management & Recovery techniques in RDBMS.

CO4 Analyze various advanced databases prevailing in market, Big Data, Temporal Databases, Parallel and Distributed Databases, XML Database and multidimensional Databases

CO5 Demonstrate No SQL databases (Open Source)

Course Code: PGCA1905

 Course Name: Technical Communication

CO1 The objective of the course is to help the students become the independent users of English language.

CO2 Students will acquire basic proficiency in reading & listening, comprehension, writing and speaking skills.

CO3 Students will be able to understand spoken and written English language, particularly the language of their chosen technical field.

CO4 They will be able to converse fluently.

CO5 They will be able to produce on their own clear and coherent texts.

Course Code: PGCA1954

Course Name: Data Structures using Python Laboratory

CO1 Understand the concept of data structures, python and apply algorithm for solving problems like Sorting, searching, insertion and deletion of data.

CO2 Implement linear and non-linear data structures for processing of ordered or unordered data.

CO3 Analyze various algorithms based on their time and space complexity.

Course Code: PGCA1955

Course Name: Advanced Database Management System Laboratory

CO1 Implement query a database using SQL DML/DDL commands.

CO2 Analyze integrity constraints on a database

CO3 Develop PL/SQL programs including stored procedures, stored functions, cursors

CO4 Design new database and modify existing ones for new applications and reason about the efficiency of the result.

CO5 Implement various DBA roles/techniques

Course Code: PGCA1908

Course Name: Technical Communication Laboratory

CO1 The objective of the course is to help the students become the independent users of English language.

CO2 Students will acquire basic proficiency in listening and speaking skills.

CO3 Students will be able to understand spoken English language, particularly the language of their chosen technical field.

CO4 They will be able to converse fluently

CO5 They will be able to produce on their own clear and coherent texts.

Course Code: PGCA1909

Course Name: Web Technologies

CO1 Understand the basics of Internet and Web Services.

CO2 Describe and differentiate Programming Language and Markup Language.

CO3 Connect various web pages and web sites together.

CO4 Capture user input from the remote users.

CO5 Learn connectivity concepts of Front End and Back End.

Course Code: PGCA1920

Course Name: Design & Analysis of Algorithms

CO1 Categorize problems based on their characteristics and practical importance

CO2 Develop Algorithms using iterative/recursive approach

CO3 Design algorithm using an appropriate design paradigm for solving a given problem

CO4 Classify problems as P, NP or NP Complete

Course Code: PGCA1918

Course Name: Advanced Java

CO1 Learn the advanced features of Java and write the programs.

CO2 Work with API and implement Serialization concept of Java.

 CO3 Learn Java Generics and develop Projects.

Course Code: PGCA1956

Course Name: Linux Administration

CO1 Understand the technical details of Linux operating system

CO2 Work with various Linux command and understand file hierarchical structuring

CO3 Administrate user, manage and configure packages in Linux

CO4 Know and configure the various internet services.

Course Code: PGCA1932

Course Name: Information Security and Cyber Law

CO1 Acquire knowledge about various Information Systems.

CO2 Understand the key security requirements of Confidentiality, Integrity &Availability.

CO3 Demonstrate the concept of Intrusion Detection & Intrusion Prevention.

CO4 Apply Symmetric Encryption techniques.

CO5 Describe the concept of Security policies and Cyber Laws.

Course Code: PGCA1914

Course Name: Web Technologies Laboratory

CO1 Understand Static and Dynamic concepts of web designing.

CO2 Develop ability to retrieve data from a database and present it online.

CO3 Design web pages that apply various dynamic effects on the web site.

CO4 Solve complex and large problems using Scripting Language & Markup Language.

Course Code: PGCA1922

Course Name: Advanced Java Laboratory

CO1 Learn the advanced features of Java and write the programs.

CO2 Work with API and implement Serialization concept of Java.

CO3 Learn Java Generics and develop Projects.

CO4 Understand to use digital marketing for developing effective digital and social media strategies

Course Code: PGCA1957

Course Name: Linux System Administration Laboratory

CO1 Install Linux desktop and Linux server operating system.

CO2 Use various commands for performing different operations

CO3 Work with various Linux administration commands

CO4 Install and configure various servers in Linux environment

Course Code: PGCA1925

Course Name: Advanced Computer Networking

CO1 Familiar with the different Network Models.

CO2 Understand different protocols working at Medium Access Sub layer.

CO3 Learn the concept of network routing through algorithms.

CO4 Learn and understand Internet protocols and network security.

Course Code: PGCA1926

Course Name: Artificial Intelligence & Soft Computing

CO1 Understand the significance and domains of Artificial Intelligence and knowledge representation.

CO2 Examine the useful search techniques; learn their advantages, disadvantages, and comparison.

CO3 Develop the skills to gain a basic understanding of neural network theory and fuzzy logic theory.

CO4 Apply artificial neural networks and fuzzy logic theory for various problems.

CO5 Determine the use of Genetic algorithm to obtain optimized solutions to problems.

Course Code: PGCA1927

Course Name: Theory of Computation

CO1 Use basic concepts of formal languages of finite automata techniques.

CO2 Design Finite Automata's for different Regular Expressions and Languages.

CO3 Construct context free grammar for various languages.

CO4 Solve various problems of applying normal form techniques, push down automata and Turing Machines.

CO5 Solve computational problems regarding their computability and complexity and prove the basic results of the theory of computation.

Course Code: PGCA1928

Course Name: Advanced Computer Networking Laboratory

CO1 Familiarize themselves with the different Network Models.

CO2 Understand working of different devices used to set up LAN.

CO3 Learn the concept of network routing.

CO4 Learn and understand Internet protocols and network security.

Course Code: PGCA1929

Course Name: Artificial Intelligence & Soft Computing Laboratory

CO1 Develop the skills to gain a basic understanding of neural network theory and fuzzy logic theory.

CO2 Apply artificial neural networks and fuzzy logic theory for various problems.

CO3 Determine the use of Genetic algorithm to obtain optimized solutions to problems

Course Code: PGCA1930

Course Name: Software Project Management

CO1 Understand and practice the process of project management

CO2 Develop the scope of work, provide accurate cost estimates and to plan the various activities.

CO3 Understand and use risk management analysis techniques that identify the factors that put a project at risk and to quantify the likely effect of risk on project timescales

CO4 Identify the resources and people required for a project and to produce a work plan and resource schedule.

Course Code: PGCA1971

Course Name: Optimization Techniques

CO1 Formulate and solve linear programming problems

CO2 Frame and resolve the transportation and assignment problems

CO3 Understand the Project Management problems using CPM

CO4 Find solution to two person zero-sum games

Course Code: PGCA1972

Course Name: Data Mining and Business Intelligence

CO1 Understand basic concepts of data warehouse and business intelligence

CO2 Perform various data warehouse-related problems

CO3 Analyze data and relate to real-world scenario

CO4 Deriving intrinsic facts from data

Course Code: PGCA1973

Course Name: Enterprise Resource Planning

CO1 Analyse a business processes of different functional areas

CO2 Understand ERP & Related Technologies

CO3 ERP Implementation Strategies

CO4 Use and apply this knowledge in E Commerce & E Governance relatedapplications.

Course Code: PGCA1933

Course Name: Mobile Application Development

CO1 Know the components and structure of mobile application development frameworksfor Android and iOS based mobiles.

CO2 Understand how to work with various mobile application development frameworks.

CO3 Design and implement the user interfaces of mobile applications.

CO4 Develop useful mobile applications using Google Android and Eclipse simulator

Course Code: PGCA1934

Course Name: Mobile Application Development Laboratory

CO1 Understand how to work with various mobile application development frameworks.

CO2 Develop mobile applications using GUI and Layouts

CO3 Learn the basic and important design concepts and issues of development of mobileapplications.

CO4 Analyze and discover own mobile app for simple needs.

Course Code: PGCA1935

Course Name: Simulation & Modelling

CO1 Identify the paradigms and approaches used to design the simulation.

CO2 Understand the various types of simulation, techniques and methods.

CO3 Apply concepts of computer simulation for types of inputs, system models, outputbehavior and performance estimation

CO4 Test the goodness of a simulation by analyzing the simulated data.

Course Code: PGCA1936

Course Name: Simulation & Modelling Laboratory

CO1 Understand the use of software tools for modelling and analysis of mathematicalconcepts for engineering application.

CO2 Know how to simulate any discrete system using queuing systems.

CO3 Model and analyze simple engineering concepts and its importance in engineeringapplications.

CO4 Develop skills to apply simulation software to construct and execute goal-drivensystem models.

Course Code: PGCA1921

Course Name: E-Commerce & Digital Marketing

CO1 Understand various applications and scope of ecommerce.

CO2 Acquire knowledge of various payment modes used in ecommerce today.

CO3 Learn to develop, evaluate, and execute a comprehensive digital marketing strategyand plan

CO4 Describe how and why to use digital marketing for multiple goals within a largermarketing and/or media strategy, Developing effective digital and social media strategies

CO5 Understand the major digital marketing channels - online advertising: Digital display, video, mobile, search engine, and social media

Course Code: PGCA 1974

Course Name: e-Commerce and Digital Marketing Laboratory

CO1 Understand of implementation of ecommerce applications.

CO2 Learn to develop and implement digital marketing strategy and plan

CO3 Implement and developing effective digital and social media strategies

CO4 Implementation and working on the social, and security issues concerning the digitalmarketing and e-commerce.

Course Code: PGCA1931

Course Name: Software Testing & Quality Assurance

CO1 Understand various approaches of software testing and quality assurance forsoftware development.

CO2 Create test strategies, design test cases, prioritize and execute them.

CO3 Identify various risks involved with software projects and build risk management

CO4 Plan and execute software management and configuration activities.

Course Code: PGCA1975

Course Name: Software Testing & Quality Assurance Laboratory

CO1 Understand various approaches of software testing and quality assurance forsoftware development.

CO2 Create test strategies, design test cases, prioritize and execute them.

CO3 Identify various risks involved with software projects and build risk management

CO4 Plan and execute software management and configuration activities.

Course Code: PGCA1976

Course Name: Machine Learning and Data Analytics using Python

CO1Learn Machine Learning concepts

CO2Understand the difference between supervised and unsupervised learning

CO3Learn clustering and classification algorithms

CO4Analyze data using Python Numpy, Panda Libraries

CO5Visualize data using matplotlib library of Python

Course Code: PGCA 1958

Course Name: Advanced Web Technologies

CO1Understand client-side and server-side programming.

CO2Learn to represent web data and XML document handling.

CO3Understand AJAX and relevance.

CO4Develop a dynamic webpage by the use of java PHP and MySQL.

CO5Able to learn how to perform basic CRUD database operations in a Dynamic Website.

CO6Learn about web services and their development.

Course Code: PGCA1977

Course Name: Machine Learning and Data Analytics using Python Laboratory

CO1 Develop knowledge of various learning models of data.

CO2 Implement a wide variety of learning algorithms.

CO3 Understand how to evaluate models generated from data.

CO4 Apply the algorithms to a real-world problems.

CO5 Optimize the models learned and report on the expected accuracy that can be achieved by applying the models.

Course Code: PGCA 1960

Course Name: Advanced Web Technologies Laboratory

CO1 Understand the advance concepts of website development.

CO2 Provide skills to design and develop dynamic web sites.

CO3 Work independently for database programming for web applications

CO4 Understand concepts of jQuery methods, AJAX, Bootstrap and REACT

CO5 Connect Website with an Database Server and perform basic CRUD operations.

CO6Develop market ready website, to be used by clients.

Course Code: PGCA1937

Course Name: Cloud Computing

CO1 Understand the basic concept and importance of cloud computing.

CO2 Access the suitability of migrating to a cloud solution for different applications.

CO3 Compare and evaluate the virtualization technologies.

Course Code: PGCA 1938

Course Name: Cloud Computing Laboratory

CO1 Learn the use of cloud computing tools offered by industry leaders.

CO2 Develop and deploy cloud applications using popular cloud platforms.

CO3 Configuration of the virtual machines on the cloud and building of a private cloud.

Course Code: PGCA1963

Course Name: Digital Image Processing

CO1 Understand the need for various image transforms along with properties

CO2 Learn different techniques employed for the enhancement of images

CO3 Understand the rapid advances in Machine vision

CO4 Analyze images in multiresolution environment

CO5 Learn image compression techniques

Course Code: PGCA1964

Course Name: Digital Image Processing Laboratory

CO1 Implement the various operations which can be performed on images.

CO2 Apply filters on images as per the requirement

CO3 Implement different techniques employed for the enhancement of

CO4 Develop an Image Processing Application

Course Code: PGCA1965

Course Name: NLP and Speech Recognition

CO1 Learn basics of natural language processing

CO2 Understand the text normalization, use of edit distance, and regular expressions

CO3 Learn Naive bayes and sentiment classification algorithms

CO4 Familiarize with chatbots and phonetics

CO5 Learn the concept of speech recognition and text to speech conversion.

Course Code: PGCA1966

Course Name: NLP and Speech Recognition Laboratory

CO1 Develop knowledge of various learning models of data.

CO2 Understand a wide variety of learning algorithms.

CO3 Understand how to evaluate models generated from data.

CO4 Apply the algorithms to a real-world problems.

CO5 Optimize the models learned and report on the expected accuracy that can be achieved by applying the models.

Course Code: PGCA1967

Course Name: IOT & Blockchain Technology

CO1 Understand the terminology and enabling technologies of IoT and Blockchain

CO2 Enumerate the steps involved in IoT system design methodology

CO3 Gain Knowledge about the working of bit coin crypto currency

CO4 Describe domain specific applications of IoT and Blockchain

Course Code: PGCA1968

Course Name: IOT & Blockchain Technology Laboratory

CO1 Learn and Use IoT sensors and remotely monitor data and control devices.

CO2 Develop real life IoT based projects.

CO3 Understand blockchain technology and develop blockchain based solutions.

CO4 Build and deploy IoT based blockchain applications for on-premise and cloud based architecture.