MCA- I, II, III, IV & V Semesters

Code	Course Name	Course Outcomes
MCA – I Semester		
DPCA19T11	**Programming in C**	**CO1:** Understand the flow of data and instructions in programming **K2** **CO2:** Manage with data structures based on problem subject domain **K2** **CO3:** Practically implement Algorithms **K2** **CO4:** Write program to a specific environment **K3** **CO5:** Study, analyze and apply the programming concept to any environment **K4**
DPCA19T12	**System Software**	**CO1:** Understand the basic functions and designs of system software **K2** **CO2:** Understand the various concepts of assemblers and macro processors **K2** **CO3:** Familiarize with the various editors and debugging techniques **K2** **CO4:** Design simple assembler, linker and loader for simple instruction computer **K3** **CO5:** Design elementary macro processor for simple assembly level language **K3**
DPCA19T13	**Digital Principles And Computer Organization**	**CO1:** Understand the processing of Computer and the function of Memory and its types **K2** **CO2:** Know about the function and organization of Input Output devices **K2** **CO3:** Understand the digital representation of data in a computer system **K2** **CO4:** Identify, understand and apply different number systems and codes **K3**

		CO5: Understand computer arithmetic formulate and solve problems **K3, K4**
DPCA19T15	**Management Information System**	**CO1:**Optimize the programming code with the help of Object oriented approach **K1** **CO2:**Choose appropriate data structures to represent data items in real world problems **K2** **CO3:**Analyze the time and space complexities of algorithms **K4** **CO4:**Write the code for a large program after overcoming the time and space complexity.**K3** **CO5:**Analyze and implement various searching and sorting techniques **K4**
DPCA19T22	**Operating System**	**CO1:**Exhibit familiarity with the fundamental concepts of operating systems and process management.**K2** **CO2:**Apply different optimization techniques for the improvement of system performance **K4** **CO3:** Discuss various protection and security aspects **K2** **CO4:**Use the computer system resources in an efficient way **K1** **CO5:**Apply different deadlock prevention techniques **K3**

Code	**Course Name**	**Course Outcomes**
MCA – II Semester		
DPCA19T23	**Multimedia And Its Applications**	**CO1:**Understand different multimedia tools and their usage.**K2**

		CO2: Understand the process of digitizing different analog signals **K2** **CO3:**Implement various multimedia standards and compression technologies **K3** **CO4:**Develop an interactive multimedia presentation by using multimedia devices **K3** **CO5:**Design and develop an effective e-content package. **K3 K4**
DPCA19T25	**Resource Management Techniques**	**CO1:**Solve optimization problems using mathematical tools **K2 & K3** **CO2:**Solve transportation and assignment problems **K4** **CO3:**Apply integer programming and linear programming to solve real life applications **K4** **CO4:**Design simple operation research models to improve decision making **K3** **CO5:**Solve networks problems using CPM/PERT **K4 & K5**

Code	Course Name	Course Outcomes
MCA – III Semester		
DPCA19T31	**Programming in Java**	**CO1**: Design, create, build, and debug Java applications and applets **K3, K3& K5** **CO2**: Write programs using OOPs concept, graphical user interface (GUI) components and Java‟s Event Handling Model **K3** **CO3:**Solve inter-disciplinary applications using the concept of inheritance **K3 & K4** **CO4:** Apply JDBC to provide a program level interface for communicating with database using Java programming **K3** **CO5:**Develop software with Java programming language **K3**
DPCA19T32	**Software Engineering**	**CO1:** Understands the process to be followed in the software development life Cycle **K2** **CO2:** Find practical solutions to the problems **K4** **CO3:** Adapt the basic software engineering methods and practices in their Appropriate applications **K3** **CO4:** Distinguish the various software process models **K4** **CO5:** Analyze, design and maintain software systems **K3 & K4**
DPCA19T33	**Mathematical Foundation Of Computer Science**	**CO1:** Understand the complexity of computational problems **K2** **CO2:** Think about the design of formal language which would be able to
DPCA19T35	**Cloud Computing**	**CO1:** Identify the architecture, infrastructure and delivery models of cloud computing **K2**

		CO2: Design Cloud Services and Set a private cloud **K3** **CO3:** Analyze the virtualization and cloud computing concepts **K4** **CO4:**Understand the key dimensions and challenges of cloud computing **K2** **CO5:**Familiarize with open source cloud computing software and free/commercial cloud services **K2**

Code	**Course Name**	**Course Outcomes**
MCA – IV Semester		
DPCA19T41	**Rdbms [Relational Database Management System]**	**CO1:** Understand the use of Structured Query Language (SQL) **K2** **CO2:** Create E/R models from application descriptions. **K3** **CO3:** Apply normalization techniques to standardize the database. **K3 & K4** **CO4:** Design and implement a database system for real time problem **K6** **CO5:** Create databases in an RDBMS and enforce data integrity constraints and queries using SQL **K6**
DPCA19T42	**Computer Networks**	**CO1:**Have a good understanding of the OSI Reference Model and TCP/IP Model and in particular have a good knowledge of Layers. **K2** **CO2:**Analyze the requirements for a given organizational structure and select the most appropriate networking architecture and technologies. **K4** **CO3:**Design and implement network layer protocols within a simulated networking environment **K3** **CO4:** Explore the basis of computer networks and

		various protocols and understand the world wide web concepts **K5** **CO5:**Administrate a network and flow of information and predict ethical, legal, security and social issues related to computer networks **K4**
DPCA19T43	**Computer Graphics**	**CO1:** Analyze the performance characteristics of various applications of computer graphics **K4** **CO2:** Analyze the major components of OpenGL used to build interactive models **K4** **CO3:** Create interactive graphics applications in C++ using one or more graphics application programming interfaces.**K6** **CO4:** Write programs that demonstrate computer graphics animation and 2D image processing techniques. **K3** **CO5:** Create effective OpenGL programs to solve graphics programming issues **K6**
DPCA19T45	**Mobile Computing**	**CO1:**Understand the characteristics and limitations of mobile hardware devices including their user-interface modalities.**K2** **CO2:**Design and development of context-aware solutions for mobile devices.**K3** **CO3:**Awareness of professional and ethical issues relating to security and privacy of user data and user behavior **K2** **CO4:**Apply the fundamental design paradigms and technologies to mobile computing application **K3** **CO5:** Develop mobile computing applications by analyzing their characteristics and requirements **K6**

Code	Course Name	Course Outcomes
MCA – V Semester		
DPCA19T51	**Python Programming**	**CO1:** Explain the basic principles of Python programming language **K2** **CO2:**Understand and implement modular approach using python **K2 & K3** **CO3:**Implement various data structures provided by python library **K3** **CO4:** Develop real-world applications using oops, files and exception handling provided by python **K6** **CO5:**Make their code robust by handling errors and exceptions properly **K3 & K4**
DPCA19T52	**Data Mining And Data Warehousing**	**CO1:** Discuss the role of data warehousing and enterprise intelligence in industry and government. **K2** **CO2:** Summarize the dominant data warehousing architectures and their support for quality attributes. **K2** **CO3:** Identify appropriate data mining algorithms to solve real world problems **K4** **CO4:** Compare and evaluate different data mining techniques like classification, prediction, clustering etc. **K4 & K5** **CO5:** Benefit the user experiences towards research and innovation **K4**
DPCA19T53	**Digital Image Processing**	**CO1:** Explain how digital images are represented and manipulated in computer **K2** **CO2:** Understand different image enhancement techniques and image transforms **K2** **CO3:**Analyze the basic algorithms used for image processing and image compression with morphological image processing **K4** **CO4:** Write a program to implement fundamental

		image processing algorithms **K3** **CO5:** Develop real world applications using different image processing techniques **K6**
DPCA19T55	**Network Security**	**CO1:** Understand the design issues in Network Security **K2** **CO2:**Understand the network security services and mechanisms **K2** **CO3:** Evaluate authentication and hash algorithms. **K4** **CO4:**Identify security threats, security services and mechanisms to counter them. **K5** **CO5:** Design a security model to prevent, detect and recover from the attacks. **K6**