



Department of Computer Science

M.Sc. Computer Science

S.No.	Course Code	Course Name	Course Outcomes
SEMESTER- I			
1.	18PCSC11	Core Course – I: Discrete Mathematics	<ol style="list-style-type: none">1. Able to understand the logic.2. Able to express logic sentences.3. Able to deal with sets and functions.4. Able to work with Boolean function.5. Gain knowledge about counting problems.6. Able to apply mathematics in graph theory.
2.	18PCSC12	Core Course – II: Advanced C and Data Structure	<ol style="list-style-type: none">1. Design algorithmic solution for given problem.2. Acquire master in handling TSR Routine.3. Learn to choose appropriate data structure as applied to specified problem definition.4. Acquire skills to use operations like searching, insertion, deletion.5. Students will be able to apply concepts learned in various domains like DBMS, compiler construction etc.6. Use linear and non -linear data structures like stacks, queues, linked list etc.7. Describe stack, Queue and linked list operations.
3.	18PCSC13	Core Course – III : Modern Operating Systems	<ol style="list-style-type: none">1. Understand the difference between different types of modern operating systems, virtual machines and their structure of implementation and applications.



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			<ol style="list-style-type: none">2. Understand the difference between process & thread, issues of scheduling of user level processes / threads and their issues & use of locks, semaphores, monitors for synchronizing multiprogramming with multithreaded systems and implement them in multithreaded programs.3. Gain knowledge about the concepts of deadlock in operating systems and how they can be managed / avoided and implement them in multiprogramming system.4. Demonstrate the design and management concepts along with issues and challenges of main memory, virtual memory and file system.5. Understand the types of I/O management, disk scheduling, protection and security problems faced by operating systems and how to minimize these problems.6. Understanding in Linux Operating System.
4.	18PCSO11	Major Elective Course - I : Compiler Design	<ol style="list-style-type: none">1. Gain knowledge of lex tool & yacc tool to develop a scanner & parser.2. Understand building symbol tables and generating intermediate code.3. Identify the code optimization techniques to improve the performance of a program in terms of speed & space.4. Acquire knowledge in modern compiler & its features.5. Understand the new tools and technologies used for designing a compiler.6. Understand the patterns, tokens & regular expressions.
5.	18PCSO12	Major Elective Course - I : Object Oriented	<ol style="list-style-type: none">1. Prepare Object Oriented Analysis and Design documents for a



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		Analysis and Design	<ul style="list-style-type: none">given problem using Unified Modeling Language.2. Master the fundamental principles of OO programming.3. Familiar with the application of the Unified Modeling Language (UML) towards Analysis and design.4. Master common patterns in OO design and implement them.5. Familiar with group/team projects and presentations.6. Be exposed to technical Writing and Oral presentations.7. Able to understand the object oriented concepts and to apply object oriented lifecycle.
6.	18PCSO13	Major Elective Course - I : Embedded Systems	<ul style="list-style-type: none">1. Understand basic concepts in the embedded computing systems area.2. Determine the optimal composition and characteristics of an embedded system.3. Design and program an embedded system at the basic level.4. Recognize the key features of embedded systems in terms of computer hardware and be able to discuss their functions.5. Examine and evaluate the hardware functionality required by and embedded system to achieve real-time operation.6. Describe and illustrate real-time operation of a system.7. Discuss, appraise and implement efficient software design for embedded systems.
7.	18PCSO14	Major Elective Course - I : Computer Security	<ul style="list-style-type: none">1. Understand the fundamentals Computer Security.2. Gain Knowledge in the concept of Cryptography and its applications.3. Familiarity in encryption algorithms.



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			<ol style="list-style-type: none">Gain Familiarity with Program Security.Learn the concepts of protecting Operating Systems.Analyze Database Security.
8.	18PCSC1P	Core Course – IV: Advanced C and Data Structure Lab	<ol style="list-style-type: none">Familiarization of language environment.Apply C features including arrays, structures and pointers.Acquire practical knowledge on the application of data structures.Develop skills to design and analyze simple and non linear data structures.Identify the appropriate data structures for given problem.
9.	18PCSC1Q	Core Course – V : Python Programming Lab	<ol style="list-style-type: none">Ability to write simple programs.Ability to develop Python programs using Strings, Lists and Tuples.Knowledge to develop programs using the concepts of Dictionary and Sets.Ability to handle file using Python constructs.Ability to write programs using classes and objects in Python.Knowledge in Handling datasets for Data Analysis and Machine Learning using Python.
SEMESTER - II			
10.	18PCSC21	Core Course – VI : Advanced Java Programming	<ol style="list-style-type: none">Acquire Basic Knowledge in Advanced Java.Gain knowledge in Swing and Networking, and Struts.Acquire Knowledge in handling swing components and containers.Apply network sockets.



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			<ol style="list-style-type: none">5. Understanding in Web Services.6. Work with database connection and Struts framework.
11.	18PCSC22	Core Course – VII: Data Communications and Networks	<ol style="list-style-type: none">1. Learn the fundamentals of computer Networks.2. Gain knowledge in the functionalities of each and every layer in network.3. Ability to realize and compare different LAN topologies.4. Implement and Compare the performance of Data Link Layer protocols.5. Analyze the services and features of the various layers in the protocol stack.6. Differentiate different routing algorithms and their usage.
12.	18PCSC23	Core Course – VIII: Database Systems	<ol style="list-style-type: none">1. Understand the basic concepts of the database and data models.2. Design a database using ER diagrams and map ER into Relations and normalize the relations.3. Acquire the knowledge of query evaluation to monitor the performance of the DBMS.4. Develop a simple database applications using normalization.5. Acquire the knowledge about different special purpose databases and to critique how they differ from traditional database systems.
13.	18PCSN21	Non-Major Elective Course – I: Web Designing	<ol style="list-style-type: none">1. Acquire knowledge in the concepts of HTML and JavaScript.2. Acquire knowledge in Basic HTML tags.3. Design a HTML page using lists, links, text, images and tables.4. Understand fundamentals of JavaScript.5. Learn basic problem solving techniques and principles of structured



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			programming.
14.	18PCSC2P	Core Course – IX : Advanced Java Programming Lab	<ol style="list-style-type: none"> 1. Ability to work with List and Collection class. 2. Ability to work with Swing Controls and Layouts. 3. Knowledge in Client & Server implementation. 4. Understanding in JDBC concepts. 5. Ability to work with Web Services. 6. Ability to work with Java Struts Framework.
15.	18PCSC2Q	Core Course – X: RDBMS Lab	<ol style="list-style-type: none"> 1. Populate and query a database using SQL DML/DDI commands. 2. Apply PL/SQL including stored procedures, stored functions, cursors, packages in application development and Design different views of tables for different users. 3. Design and build a GUI application using database. 4. Design and implement a database with data consistency. 5. Apply current technical concepts and practices in the core information technologies.
SEMESTER -III			
16.	(18PCSC31	Core Course – XI: Web Technology	<ol style="list-style-type: none"> 1. Select and apply markup languages for processing, identifying, and presenting of information in web pages. 2. Create PHP programs that use various PHP library functions, and that manipulate files and directories. 3. Analyze and solve various database tasks using the PHP language. 4. Able to write regular expressions including modifiers, operators and Meta characters.



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			<ol style="list-style-type: none">5. Design and implement websites with good aesthetic sense of designing and latest technical know-how's.6. Incorporate best practices in navigation, usability and written content to design websites that give users easy access to the information they seek.7. Design to make a website much more responsive.
17.	18PCSC32	Core Course – XII : Software Project Management	<ol style="list-style-type: none">1. Ability to manage the selection and initiation of individual projects and of portfolios of projects in the enterprise.2. Conduct project planning activities that accurately forecast project costs, timelines, and quality. Implement processes for successful resource, communication, and risk and change management.3. Learn practical application of project management to formulate strategies allowing Organizations to achieve strategic goals.4. Develop critical-thinking and analytical decision-making capabilities to investigate Complex business problems to propose project-based solutions.5. Acquire skills to manage creative teams and project processes effectively and efficiently.6. Develop team-building skills to managing projects, project teams, and stakeholders.
18.	18PCSC33	Core Course – XIII: Data Mining	<ol style="list-style-type: none">1. Gain knowledge in data mart designing and implementation.



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			<ol style="list-style-type: none">2. Understand principles and applications of warehouse.3. Design physical, logical and conceptual model.4. Understand various classification algorithms.5. Acquire skills measure the classified data.6. Apply mining concepts in real world issues.
19.	18PCS031	Major Elective Course - II : Digital Image Processing	<ol style="list-style-type: none">1. Acquire the fundamental concepts of a digital image processing system.2. Apply image enhancement techniques.3. Understand the concept of restoration techniques.4. Analyze and compress given images using segmentation techniques.5. Learn different image transforms techniques.6. Learn various filtering techniques to sharpen the image.
20.	18PCS032	Major Elective Course - II: Mobile Computing	<ol style="list-style-type: none">1. Gain the knowledge about various types of Wireless Data Networks and VoiceNetworks.2. Understand the architectures, the challenges and the Solutions of WirelessCommunication3. Realize the role of Wireless Protocols in shaping the future Internet.4. Able to develop simple Mobile Application Using Android5. Apply the fundamental design paradigms and technologies to mobile computingapplications.6. Develop consumer and enterprise mobile applications using representative mobiledevices and platforms using modern development methodologies.



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			<ol style="list-style-type: none">7. Design effective mobile interfaces using human computer interaction principles.8. Evaluate the role of mobile applications in software intensive systems.
21.	18PCSO33	Major Elective Course – II: Network Security and Cryptography	<ol style="list-style-type: none">1. Be able to perform encrypt and decrypt messages.2. Understand what is meant by number theory and finite fields.3. Be able to construct public- key.4. Understand hash functions.5. Be able to web security consideration.6. Able to Analyze existing authentication and key agreement protocols.
22.	18PCSO34	Major Elective Course –II : Neural Networks	<ol style="list-style-type: none">1. Be able to build neuron model.2. Familiarize in activation function.3. Be able to recognize pattern.4. Be able to classify pattern.5. Familiarize in linear and nonlinear Feed Forward networks.6. Able to work with Artificial Neural Networks.
23.	18PCSC3P	Core Course – XIV : Open Source Tools Lab	<ol style="list-style-type: none">1. Familiarization of open source language environment.2. Apply to R features including arrays, vectors and metrics.3. Apply to PHP features including session, cookies and files.4. Gain the knowledge in environmental function and mathematical function in R.5. Gain the knowledge in reading data from working data set in R.6. Gain skills to handle files and directories in PHP.
24.	18PCSC3Q	Core Course – XV:	<ol style="list-style-type: none">1. Gain an understanding of the Microsoft .NET architecture.



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		Mobile and Web Lab App Development	<ol style="list-style-type: none"> 2. Acquire a working knowledge of creating rich internet Web application using the 3. .NET Framework including ASP.NET, ADO.NET, C# and Web Services. 4. Acquire Professional ethics in design and deploying an application. 5. Procure employability in IT sector IT industry. 6. Get understanding work on Android Development Environment. 7. Develop effective .apk files. <p>Enhance practical skills and knowledge to construct software for a mobile application</p>
SEMESTER - IV			
25.	18PCSC41	Core Course – XVI : Advanced Computing	<ol style="list-style-type: none"> 1. Describe the operation of modern and high performance computers. 2. Undertake performance comparisons of modern and high performance computers. 3. Improve the performance of applications on modern and high performance computers. 4. Understand the application areas of IOT. 5. Realize the revolution of Internet of mobile devices 6. Know concepts of cloud and server networks. 7. Understand building blocks of IOT and characteristics. <p>Familiar to connect IoT devices via pervasive networks</p>
26.	18PCSC4P	Core Course – XVII: Employability Skills	<ol style="list-style-type: none"> 1. Understand the significance of soft skills in working environment. 2. Learn to connect and work with others to achieve a set of task. 3. Handle emotions and respect for the opinions, personal space.



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			<ol style="list-style-type: none">4. Develop self-motivation, raised aspirations and beliefs in one's own abilities.5. Excel with focused approach in working environment.6. Communicate effectively with creativity.7. Acquiring of leadership quality.8. Handling of difficult situations in different perspective.