

KONGUNADU ARTS AND SCIENCE COLLEGE
(AUTONOMOUS)
COIMBATORE – 641 029



DEPARTMENT OF COMPUTER SCIENCE (PG)

(2023 - 2024)
Batch

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 1 -Data Structures using Python		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. To Inculcate the Knowledge of various data structures and definitions.
2. To provide the use of data structure background for programming with Python.
3. To develop the proficiency for planning & organizing the data structures.

Course Outcomes (CO)

K1	CO1	Students will get the knowledge of data structures and its usage
K2	CO2	Distinguish the Various data structures
K3	CO3	Skills to describe the data structures appropriately for programming
K4	CO4	Apply appropriate algorithms and data structures for various applications
K5	CO5	Implement Data Structures with Python coding

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 2 -Advanced Relational Database Management Systems		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. To understand and apply the principles of data modelling using Entity Relationship and develop a good database design.
2. To understand the use of SQL and its syntax and apply Normalization.
3. To understand the concept of information retrieval.

Course Outcomes (CO)

K1	CO1	Student will master the basic concepts of Databases
K2	CO2	Student will have high level understanding of relational model and SQL.
K3	CO3	Student will be proficient in data Normalization
K4	CO4	Students will understand security concept and informational retrieval.
K5	CO5	Students will understand an analyze the technology in Cloud Database

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 1- Data Structures using Python Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. To Inculcate the Knowledge of various data structures and definitions.
2. To provide the use of data structure background for programming.
3. To decide of appropriate data structure for programming.

Course Outcomes (CO)

K3	CO1	Distinguish the Various data structures
K3	CO2	Skills to describe the data structures appropriately for programming
K4	CO3	Apply appropriate algorithms and data structures for various applications
K5	CO4	Evaluate the Various Data Structures with various applications
K5	CO5	Evaluate various Data Structures with different applications using Python

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 2 - Advanced RDBMS Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. To define schema and creation of Databases.
2. To write SQL Queries to retrieve information from Databases.
3. To use host language interface with Embedded SQL.

Course Outcomes (CO)

K3	CO1	Creation of Databases
K3	CO2	Retrieval of Information of Databases
K4	CO3	Use of Forms and Report writer packages
K5	CO4	Use of host language interface with Embedded SQL
K5	CO5	Use the role of Cloud architecture in the storage design

SEMESTER II

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 3 - Advanced Java Programming		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. To understand the basic concepts of Object-oriented programming.
2. To inculcate the concepts of networking and graphics offering a GUI environment.
3. To educate the concepts of database management and essentials of Servlets

Course Outcomes (CO)

K1	CO1	Ability to understand the applications in OOPS paradigm.
K2	CO2	Student can establish Client-Server network and enable Multithreaded applications
K3	CO3	Will Effectively use Applets, Event and Construction of Bean API, providing a GUI environment,
K4	CO4	Capable of better Backend Management, can compose complex Applications with Swings and Servlet.
K5	CO5	Develop applets for web applications and design GUI based applications

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 4 - Data mining and Warehousing		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. To inculcate the basics of Data Mining and Data Warehousing.
2. To recognize the various data mining and warehousing tools in the business environment/ state of the market.
3. To develop the proficiency for planning & applying the DM techniques.

Course Outcomes (CO)

K1	CO1	Understand the basics of Data Mining & Data Warehousing.
K2	CO2	Identify the appropriate Data Mining techniques for problem solving
K3	CO3	Demonstration of various data mining techniques and ware housing tool
K4	CO4	Implement the methods and techniques to develop a small Project
K5	CO5	Implement the methods and techniques to develop a small Project

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 5 - .Net Framework		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. To understand .Net framework features like portability and language interoperability concepts.
2. To understand the vb.Net and ASP.Net controls.
3. To understand how to work with database with the help of ADO.Net.

Course Outcomes (CO)

K1	CO1	Student will be able to understand .Net framework concepts.
K2	CO2	Student will be able to remember VB.Net controls windows application.
K3	CO3	Student will be able to analyze how to use an ASP.Net controls and web application.
K4	CO4	Student will be able to create or apply database driven Windows application and ASP.Net web applications.
K5	CO5	Evaluate various Window and Web applications using VB.Net and ASP.Net

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 3 - Advanced Java Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. The course inculcates the fundamentals and dynamics of OOPs paradigm.
2. To demonstrate the the GUI and advanced functionalities enriching the development skill.
3. To simulate the industrial demands and expertise in the specified domain.

Course Outcomes (CO)

K3	CO1	Students will be capable to understand and apply the better usage of OOPs concept.
K3	CO2	Proficient in developing GUI environment and event handling
K4	CO3	Establishing networks with socket programming and Sessions
K5	CO4	Simulates applications with Swings and Servlets.
K5	CO5	Solve problems using Java collection framework and I/O classes

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 4 - .NET Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. To educate the usage of .Net framework Environment.
2. To understand the usage of controls in .Net.
3. To create database application with ADO.Net.

Course Outcomes (CO)

K3	CO1	Effective use of .Net framework concepts.
K3	CO2	Develop a working knowledge of VB.Net controls
K4	CO3	Student will be able to build well-formed web controls with validation
K5	CO4	Student will be able to create or apply database driven Windows application and ASP.Net web applications.
K5	CO5	Implementation of various Window and Web applications using VB.Net and ASP.Net

SEMESTER III**Sub.Code: 23PCS306**

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 6 - Web Technologies		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. To educate the benefits of proprietary and non-proprietary softwares.
2. To inculcate the significance of freeware Web Technologies
3. To promote the web designing skills and data handling with Server-side scripts.

Course Outcomes (CO)

K1	CO1	Will enhance their presentation skills in designing, recollecting Html tags.
K2	CO2	Students can escalate their web design and prune it to perfection with style sheets
K3	CO3	Can enhance data manipulation at client end will have sound knowledge in data validation and handling dynamic data with Php fundamentals
K4	CO4	Handling challenges at backend, performing validation at Server end with PHP-MySQL suite
K5	CO5	Evaluate the working of PHP and MySQL with different Web Servers

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 7 - Big Data Analytics		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. To introduce the basic concepts of big data.
2. To face the challenges of big data.
3. To teach students in applying skills and tools to manage and analyze big data

Course Outcomes (CO)

K1	CO1	Understand the concept and challenges of big data.
K2	CO2	Collect, manage, store, store, query and analyze various forms of big data.
K3	CO3	Gain hands-on experience on large-scale analytics tools to solve some open big data problems.
K4	CO4	Understand the big data tools like Hadoop, Hbase, NoSQL and Neo4J
K5	CO5	Exposure to modeling a Graph Database.

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 5 - Web Technologies Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	6	90	4

Course Objectives

1. The course educates the advanced concepts in web designing with Open Source tools.
2. To demonstrate the development of web application and its validation.
3. To inculcate the significance of Server Scripts and simulating applications with backends.

Course Outcomes (CO)

K3	CO1	Possess better presentation and manipulating skills for developing a dynamic web page
K3	CO2	Validating the essentials in an application using JavaScript.
K4	CO3	Capable to develop Web application with Server script
K5	CO4	Performs better Data manipulation for web application using PHP-MySQL suite.
K5	COS	Develop Web applications to solve day today problems using PHP and My SQL

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 6 - Big Data Analytics Lab		
Batch 2023-2024	Hours / Week 6	Total Hours 90	Credits 4

Course Objectives

1. To setup and install Hadoop, Pig Latin and Hive in different operating modes.
2. To Develop Map, reduce to solve problems.
3. To implement Pig Latin and Hive for Problem Solving.

Course Outcomes (CO)

K3	CO1	Exposure to setup and install Hadoop, Pig Latin and Hive.
K3	CO2	Apply Map reduce to solve different problems.
K4	CO3	Exposure to solve Problems using Pig Latin.
K5	CO4	Execution of simple programs using Hive.
K5	CO5	Develop queries using HiveQL.

Extra Departmental Course

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	EDC Paper - Internet and Web Designing Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	2	30	2

Course Objectives

1. To educate the benefits of the Internet.
2. To promote web designing skills using html tags.
3. Students can understand usage of CSS in web designing.

Course Outcomes (CO)

K1	CO1	Understand the concepts of Internet and Internet Addresses and DNS.
K2	CO2	To enhance the usage of E-Mail.
K3	CO3	Understand how to create a website with HTML tags like table tag, frame tag.
K4	CO4	Can apply their knowledge to create dynamic website using html and CSS.
K5	CO5	Can apply their knowledge to create dynamic website using html and CSS.

SEMESTER IV

Sub.Code: 23PCS408

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 8 - Internet of Things		
Batch	Hours / Week	Total Hours	Credits
2023-2024	4	60	4

Course Objectives

1. To understand Smart Objects and IoT Architectures
2. To learn about various IOT - related protocols
3. To develop IoT infrastructure for popular applications

Course Outcomes (CO)

K1	CO1	Students will get the knowledge of IoT
K2	CO2	Understand the IoT Protocols & IoT Access Technologies
K3	CO3	Describe Design & Development of IoT
K4	CO4	Know IoT supporting services
K5	CO5	Develop IoT prototypes for solving real time issues.

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Paper 9 - Advanced Computing		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. To Inculcate the basics of Grid Computing Architecture and Framework.
2. To provide exposure to Cluster Computing Middleware.
3. To understand the concepts of Cloud Computing and its Applications.

Course Outcomes (CO)

K1	CO1	Obtain a foundation for Grid Computing Concepts and Architecture
K2	CO2	Exposure to various toolkits used in Grid
K3	CO3	Proficient in single system image
K4	CO4	Apply Cloud in various Real-time Applications
K5	CO5	Apply Cloud in various Real-time Applications

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Core Practical 7 - Internet of Things Lab		
Batch	Hours / Week	Total Hours	Credits
2023-2024	5	75	4

Course Objectives

1. To understand IoT techniques.
2. To introduce IoT Application using IDEs
3. To know how to Implement IoT.

Course Outcomes (CO)

K3	CO1	Effective use of IoT
K3	CO2	Ability to use different IDEs for IoT implementation.
K4	CO3	Student can able to implement IoT Applications
K5	CO4	Student can able to embed IoT Applications
K5	CO5	Develop IoT application to send sensor data to Cloud

Programme Code: 09	MSc. Computer Science		
Title of the Paper	Project Work and Viva-Voce		
Batch	Hours / Week	Total Hours	Credits
2023-2024	12	180	4

Course Objectives

- 1 To develop real time applications.
- 2 To implement the concepts of Software Project Management.
- 3 To teach students in applying skills and tools to manage and develop solution.

Course Outcomes (CO)

K1	CO1	Understand the concept and challenges of market.
K2	CO2	Collect, manage, plan and develop a real time application.
K3	CO3	Gain hands-on experience on different project models.
K4	CO4	Helps to understand the complexity and maintaining quality.
K5	CO5	Helps to understand the complexity and maintaining quality.

MAJOR ELECTIVE PAPERS

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Elective Paper - Network Security and Cryptography		
Batch	Hours / Week	Total Hours	Credits
2023-2024			5

Course Objectives

1. To familiarize basic concepts of cryptography and algorithms.
2. To know about various security issues.
3. To understand the process of implementing the cryptographic algorithms.

Course Outcomes (CO)

K1	CO1	Understanding fundamental concepts of network security.
K2	CO2	Knowing how the encryption and decryption are done.
K3	CO3	Familiarize various kinds of viruses and related threats.
K4	CO4	Implementing various cryptography algorithms.
K5	CO5	Exposure to various Encryption standards

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Elective Paper - Quantum Computing		
Batch	Hours / Week	Total Hours	Credits
2023-2024			5

Course Objectives

1. To understand the building blocks of a Quantum Computer
2. To understand the principles, Quantum information and Limitation of quantum operations.
3. To understand the Quantum error and its correction.

Course Outcomes (CO)

K1	CO1	Understand the fundamental concepts of Quantum Computing and Computations.
K2	CO2	Understand the concepts Quantum Computers.
K3	CO3	Understand the concepts of Information of Quantum Computing
K4	CO4	Understand the concepts of Quantum Noise and Operations
K5	CO5	Exposure to error correction and fault tolerant Quantum computation

Programme Code: 09	M.Sc Computer Science		
Title of the Paper	Elective paper - Artificial Intelligence and Machine Learning		
Batch	Hours / Week	Total Hours	Credits
2023-2024			5

Course Objectives

1. To familiarize AI problems and AI techniques.
2. To learn various search techniques and knowledge representations.
3. To inculcate expert system concepts and applying them to solve the problems.

Course Outcomes (CO)

K1	CO1	Understanding basic concepts Artificial Intelligence, AI problems and its techniques.
K2	CO2	Analyze state space search, problem characteristics and knowledge representations.
K3	CO3	Students can able to differentiate between different types of learning.
K4	CO4	Students can solve the problem by acquiring knowledge of supervised and unsupervised learning.
K5	CO5	Analyze and understand difference between various types of Machine Learning algorithms

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Elective Paper - Digital Image Processing		
Batch	Hours / Week	Total Hours	Credits
2023-2024			5

Course Objectives

1. To be exposed with the basic concepts of image processing.
2. To understand image enhancement techniques through filtering techniques.
3. To understand color models.
4. To be exposed with image segmentation and compression techniques

Course Outcomes (CO)

K1	CO1	Understanding about the fundamental of digital image processing
K2	CO2	Knowing about image enhancements and various filtering mechanisms
K3	CO3	Familiarizing the concepts of transformation, restoration and color models
K4	CO4	Analyze image compression.
K5	CO5	Implementing the concepts of image segmentation and compression

NON-MAJOR ELECTIVE PAPERS

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Non-Major Elective Paper - Information Security		
Batch 2023-2024	Hours / Week	Total Hours	Credits 4

Course Objectives

1. The course is intended to preach the common goals of security.
2. To educate the Legal issues of Information Security and its cons.
3. To inculcate the Security Technologies and its methods of implementation.

Course Outcomes (CO)

K1	CO1	Understanding the fundamental and history of Information Security, its legal and professional issues.
K2	CO2	Aware of Intrusion Detection tools and Biometric controls in market.
K3	CO3	Capable to handle sensitive real time security technologies and establishing VPNs
K4	CO4	Students are able to implement information security projects and its technical aspects.
K5	CO5	Analyze Software vulnerabilities and security solutions to reduce the risk of exploitation

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Non-Major Elective Paper - Management Information Systems		
Batch	Hours / Week	Total Hours	Credits
2023-2024			4

Course Objectives

1. Students will identify the core concepts of Management Information Systems
2. To examine the concepts of business and information.
3. To design and implement the manufacturing sector

Course Outcomes (CO)

K1	CO1	Student will learn the principles and fundamentals of business management
K2	CO2	Demonstrate knowledge of the Information concepts
K3	CO3	Student will able to configure and develop a Management Information Systems
K4	CO4	Analyses the various streams of manufacturing sector
K5	CO5	Students would have the knowledge about, Development and implementation of the MIS technology

Programme Code: 09	M.Sc. Computer Science		
Title of the Paper	Non-Major Elective Paper - Business Intelligence		
Batch	Hours / Week	Total Hours	Credits
2023-2024			4

Course Objectives

1. To be exposed with the basic rudiments of business intelligence system
2. To understand the modeling aspects behind Business Intelligence
3. To understand business intelligence life cycle and the techniques used.
4. To be exposed with different data analysis too.

Course Outcomes (CO)

K1	CO1	Understanding fundamental concepts within Business Intelligence,
K2	CO2	Knowing how decision analysis and decision processes are carried out in businesses
K3	CO3	Familiarize concepts, theories and methods within data warehousing
K4	CO4	Implementing the relationship of data warehouses to production and operational systems,
K5	CO5	Incorporate Data analysis framework for optimal performance

ADVANCED LEARNERS COURSE (ALC)

Sub.Code : 23PCS0D1

ALC 1 - PROGRAMMING IN C #

Programme Code: 09	MSc. Computer Science		
Title of the Paper	ALC 1 - PROGRAMMING IN C #		
Batch	Hours / Week	Total Hours	Credits
2023-2024			4

Course Objectives

1. To understand the basic elements of C#.
2. To provide exposure to Program Structure and Inheritance.
3. To understand File systems and its operations.

ALC 2: J2EE

Programme Code: 09	MSc. Computer Science		
Title of the Paper	ALC 2 - J2EE		
Batch	Hours / Week	Total Hours	Credits
2023-2024			4

Course Objectives

1. To understand the basics of J2EE.
2. To provide exposure to Java Servlets, Beans and Remote Method Invocation.
3. To learn the concepts of Web Services.