Noorul Islam Centre for Higher Education

(Deemed to be University u/s 3 of the UGC Act 1956)

Kumaracoil, Thuckalay, Kanyakumari District - 629 180

Accredited by NAAC with 'A' Grade

CS22 BE COMPUTER SCIENCE AND ENGINEERING

Student Performance and Learning Outcomes

CS22 BE COMPUTER SCIENCE AND ENGINEERING

	ProgrammeOutcome – PO
PO1	Apply the knowledge of mathematical foundations and computer science &engineering concepts to solve complex problems related to design, development, testing and maintenance of computing systems.
PO2	Ability to identify, formulate and analyze complex problems in computer based applications.
PO3	Manage effectively on teams to accomplish a common goal.
PO4	Apply professional ethics and agree to the norms or responsibilities in engineering practice of computer science.
PO5	Communicate effectively and prepare technical documents and oral presentations.
PO6	Ability to use current techniques, skills and state-of-art tools for computing system
PO7	Ability to apply design and development principles in the construction of software systems and in the allied engineering application domains.

PROGRAMME SPECIFIC OUTCOME(PSO)	
PSO-1	Graduates are prepared to perceive the fundamental concepts in Computer Science & Engineering.
PSO-2	Graduates will be able to apply the interaction between theory and practice for problem solving.
PSO-3	Graduates will be capable to analyze and interpret existing systems for developing innovative solutions.
PSO-4	Graduates will have the skill to adapt, contribute and innovate new technologies in the field of Computer Science & Engineering.
PSO-5	Graduates will interact with the peers in the industry and society.
PSO-6	Graduates will be able to pursue higher studies in engineering or management and pursue career paths in teaching or research.

Sl.No	Subject Code	Subject Name
		SEMESTER II
1.	CS2201	Fundamentals of Communication
2.	CS2203	Fundamentals of Data Structures
3.	MS1201	Environmental Science
4.	CS2202	Electronic Devices
5.	EG2102	Technical English II
6.	MA2102	Engineering Mathematics II
7.	CS2271	Electronics Devices Lab
8.	CS2272	Data Structures Lab
		SEMESTER IV
9.	CS2205	Software Engineering
10.	CS2209	Database Management Systems
11.	CS2208	Operating System Principles
12.	CS2204	Problem Solving & Python Programming
13.	EE2215	Electrical Engineering and Control Systems
14.	MA2205	Probability and Queuing Theory
15.	CS2275	DBMS Lab
16.	CS2276	Problem Solving & Python Programming Lab
17.	CS2274	Operating System Laboratory
		SEMESTER VI
18.	CS1212	Computer Graphics
19.	CS12A4	User interface Design
20.	CS12A6	Cryptography and Network Security
21.	CS1211	Compiler Design
22.	CS1213	Visual Programming
23.	IT1212	Cyber Security
24.	CS1278	Computer Graphics Laboratory
25.	CS1279	Visual Programming Laboratory
		SEMESTER VIII
26.	CS12C9	Big Data Analytics
27.	CS12D1	Pervasive Computing
28.	CS12P5	Project Work

CS2201– Fundamentals of Communication	
CO1	Understand the basic concept of telecommunication system.
CO2	Ability to analyze the theoretical performance of a modern communication system
CO3	Understand and Analyze the base band modulation technique.
CO4	Ability to analyze the performance of a modulation technique
CO5	Apply the above concept in error detection /correction technique.

CS2203– Fundamentals of Data Structures	
CO1	Understand the concept of data structures through ADT including List, Stack and Queues.
CO2	Design and Implement various tree data structure algorithms
CO3	Apply appropriate sorting/searching technique for given problem.
CO4	Determine and analyze the complexity of given Algorithms.
CO5	Design advance data structure using Non-Linear data structure.

MS1201 - Environmental Science	
CO1	Understand the importance of Nature and itsdifferent resources
CO2	Remember and understand the components, types of echo system and bio-diversity
CO3	Remember and understand the importance ofpollution control and apply them to controlpollution
CO4	Understand sustainable development and applythe ethics to protect environment
CO5	Understand population growth and apply thetheories to control pollution, human health

CS2202 - Electronic Devices	
CO1	Learn the fundamentals of semiconductors
CO2	Learn the use of semiconductors in fabrication process
CO3	Learn the construction and working of electronic devices
CO4	Analyze the characteristics of electronic devices
CO5	Learn the application of electronic devices

EG2102 - Technical English II	
CO1	The students will be able to improve their vocabulary relating to Engineering and Technology and use articles and prepositions effectively in sentences
CO2	The students will be able to understand grammatical items like phrases,adverbs,derivatives, relative pronouns etc and thereby enhance their linguistic competence
CO3	The student will be able to acquire the essentials of writing skills relating to CV/Resume writing, email writing and the essential components of essay
CO4	The students will be able to learn the essentials of letter writing and the formalities involved in writing formal and business letters
CO5	The students will be able to learn English phonemes like vowels,dipthongs and constants and stress and intonation which will be instrumental in improving their speaking skills

MA2102 - Engineering Mathematics II	
CO1	Understand the linear differential equation with constant and variable coefficients. To solve the Cauchy's and Legendre equations and solve the differential equations by variation of parameters.
CO2	Know about functions of a complex variable, analytic functions, Cauchy'sRiemman equations. To prove the properties of analytic functions. To find the analytic function and bilinear transformation.
CO3	Study about Cauchy's integral formula and Cauchy's integral theorem, Laurent's expansion. Know about singular point, Cauchy's integral theorem. To evaluate the integral by contour integration.
CO4	Know about gradient, divergence,curl , directional derivatives, irrotational and solenoidal vector field. To verify the vector integration by Green's theorem, Gauss divergence theorem and Stoke's theorem.
CO5	Obtain the Laplace transform of elementary functions. Transform of derivatives and integrals and periodic functions. To find the inverse Laplace transform using convolution theorem and solve the differential equations.

CS2271 - Electronics Devices Lab	
CO1	Learn about basic electronic devices
CO2	Measure the electrical parameters using measuring devices
CO3	Verify the characteristics of electronic devices
CO4	Usage of IC to analyze logic gates
CO5	Design and implement digital circuits

CS2272 - Data Structures Lab	
CO1	Creation of stack, Queue
CO2	Design of linear and binary search
CO3	Design of different sorting algorithms.
CO4	Design of different linked lists.
CO5	Apply theappropriatedatastructureforagivenproblem

CS2205 -Software Engineering	
CO1	Understand the importance of the software and develop an effective project plan and apply in project development, effectively estimate the costs.
CO2	Understand the requirement specifications of the application domains and analyze the prototyping models effectively using the prototyping tools.
CO3	Understand the concepts of software design and be able to apply design and development principles in the construction of software systems.
CO4	Remember the implementation issues and follow the guidelines to evaluate the developed software applications using various testing.
CO5	Understand the quality assurance and apply the skills and tools to analyze the complex problems such as failures and faults in software systems.

CS2209 -DBMS	
CO1	Design and develop the data models using various data modeling concepts like network, hierarchical and ER models.
CO2	Develop SQL queries to extract information from large, real time data sets.
CO3	Analyze an information storage problem and evaluate an information model expressed in the form of B tree and B+ Tree.
CO4	Understand and apply the transaction processing techniques for computing systems that uses databases.
CO5	Apply current trends, skills and tools for database systems.

CS2208 - Operating System Principles	
CO1	Study and understand various types of systems and recognize process management and scheduling concept
CO2	Understand scheduling concept and scheduling algorithm then apply real time values in algorithms
CO3	Remember deadlock. Understand deadlock detection, avoidance. Analyze memory management methods.
CO4	Study about virtual memory. Remember file system mounting, sharing and protection
CO5	Analyze file systems and implementation, various file allocation methods. Evaluate O.S case studies.

CS2204 - Problem Solving & Python Programming	
CO1	Understand the problem solving techniques and samples
CO2	Illustrates the basic syntax of python programming language
CO3	Describes the various block of statements and illustrates it with program
CO4	Explores the new modules and procedures included in the python• Explains the secondary-level concepts of python programming
CO5	Explains the secondary-level concepts of python programming

EE2215 - Electrical Engineering and Control Systems	
CO1	To study the simple RL.RC and RLC circuits and measurement of power.
CO2	To study the resonance and function of special motors.
CO3	To compute the transfer function via block diagram and signal flow graph techniques
CO4	To analyze the time response characteristics of second order system
CO5	To analyze the frequency response characteristics of secondorder system using frequency response plots.

MA2205 - Probability and Queuing Theory	
CO1	Understand of the principles of basic probability axioms and rules and the moments of discrete and continuous random variables as well as be familiar with common named discrete and continuous random variables.
CO2	Recognize common probability distributions for discrete and continuous variables. Apply methods from algebra and calculus to derive the mean and variance for a range of probability distributions. Understand the central limit theorem and large-sample approximations for common statistics.
CO3	Learn how to derive the probability density function of transformations of random variables and use these techniques to generate data from various distributions. Also to know how to calculate probabilities, and derive the marginal and conditional distributions of bi variate random variables
CO4	Demonstrate understanding of the mathematical basis of continuous-time Markov chains. Develop an appreciation of the role of random processes in system modeling. Define and use Markov chains in discrete and continuous time and able to calculate probabilities of absorption and expected hitting times for discrete time Markov chains with absorbing states
CO5	Understand the terminology & nomenclature appropriate queueing theory, demonstrate the knowledge and understand the various queueing models and formulate concrete problems using queueing theoretical approaches.

CS2275 -DBMS Lab	
CO1	Understand the concepts of DDL and DML and apply commands in RDBMS.
CO2	Apply the concepts of cursors and triggers to implement and test high level extension.
CO3	Communicate effectively and apply the concepts of procedures and functions to design DB systems.
CO4	Understand and apply the design and development principles of normalization to implement the computing system.
CO5	Apply ODBC techniques to design various real time systems and work on teams.

CS2276 -Problem Solving & Python Programming Lab	
CO1	Understand the basic syntax of python
CO2	Understand the problem solving techniques
CO3	Analyze data structure concept in python
CO4	Understand all tools of python
CO5	Understand pygame with simulation

	CS2274 - Operating System Laboratory
CO1	Understand and apply the basic commands in shell programming.
CO2	Execute the commands in UNIX operating system.
CO3	Display and print the gantt chart for FCFS, SJF. Compute average waiting, Turn around time.
CO4	Display and print the gantt chart for priority, round robin scheduling.
CO5	Implement producer consumer problem, memory management scheme1, 2.

	CS1212 - Computer Graphics
CO1	Understand the overview of graphics system and ability to become familiar with the graphics system components and algorithms for computer based applications.
CO2	Understand and apply the geometrical transformations on graphics objects and their software applications in the engineering application domains.
CO3	Understand the 3D concepts and apply the modeling and transformations techniques effectively to solve the graphics problems.
CO4	Remember and understand the illumination and color concepts to apply in the design and development of the graphics software.
CO5	Understand the knowledge of animation graphics that helps in designing animation sequences using current techniques for the real time engineering applications.

	CS12A4 - User interface Design
CO1	Understands the basics of GUI and its properties are analyzed
CO2	Requirement with ERP based models are analyzed
CO3	Explores the various interactive systems
CO4	Uses the new concept virtual reality and its issues are analyzed
CO5	Demonstrate the various GUI models and its techniques are analyzed

	CS12A6 - Cryptography and Network Security
CO1	To know the methods of conventional encryption.
CO2	Understand the concepts of public key encryption and number theory
CO3	Apply the different cryptographic operations of symmetric cryptographic algorithms.
CO4	Apply the different cryptographic operations of public key cryptography
CO5	Apply the various Authentication schemes to simulate different applications. Understand various Security practices and System security standards

	CS1211 - Compiler Design
CO1	Understand the major phases of compilation and to understand the knowledge of LEX tool & YAAC tool.
CO2	Understand the role of lexical analyzer and the use of a tool to generate lexical analyzer.
CO3	Develop the parsers and evaluate the knowledge of different parsers design without automated tools
CO4	Construct the intermediate code representations and generation
CO5	Apply for various optimization techniques for dataflow analysis

CS1213 -Visual Programming	
CO1	To Understand the concept of .NET framework and also the control structure
CO2	Understand the concept of OOPs and apply it in .NET program
CO3	Understand the usage of file and directory classes
CO4	Understand and apply the windows and web control in computing system
CO5	Understand and apply the ADO Control in Windows and in XML file

IT1212 - Cyber Security	
CO1	Remember and understand the principles ofcomputer organization and communicate effectively to discuss about the OS andarchitectures.
CO2	Understand and identify the information securityfundamentals and apply them in E-commerce.
CO3	Remember and understand the security threatsand test the programming bugs in computingsystems.
CO4	Understand the security principles and apply theskills and tools for the computing system.
CO5	Apply the cyber laws, ethics and cyber forensictools in computing systems and social networks.

CS1278 - Computer Graphics Laboratory	
CO1	Understand the parameters of Bresenham's algorithm to generate the Line and ellipse.
CO2	Remember and apply the formulae to generate the line and midpoint circle
CO3	Remember the 2D concepts and perform the transformations and generate the animations for the application domain.
CO4	Remember and apply the line clipping operations, 3D transformations and the color models using the techniques for the given applications.
CO5	Apply the animation sequences for the tweening methods and analyze the differences between these using animation tools.

CS1279 - Visual Programming Laboratory	
CO1	Understand the concept of Class and apply it in Login form
CO2	Apply the concepts of Inheritance, Polymorphism and create Active controls.
CO3	To Know the concept of Dialogue control and apply in DataGridView Control.
CO4	Understand the design and development to generate Crystal report.
CO5	To perform various operation like insert, delete, update and selection using ADO.NET

CS12D1– Pervasive computing	
CO1	To know the evolution and application of Pervasive Computing
CO2	Understand the device technology, interface and Biometrics of Computing System.
CO3	Understand the DB Connectivity and Web Application Concept.
CO4	Understand the WAP Architecture, Protocol standard and Security issues.
CO5	To Know the Pervasive Web Application and Software Component.

CS12C9– Big Data Analytics	
CO1	Explain the motivation for big data systems and identify the main sources of Big Data in the real world and to discuss the challenges of conventional systems.
CO2	Ability to analyze the various techniques for mining data streams and its application in real time analytics platform.
CO3	Introduce the tools required to manage and analyze big data like hadoop, mapreduce and to evaluate its importance for distributed analysis.
CO4	Understand and evaluate the configuration and cluster setup of Hadoop with its monitoring and maintenance procedures.
CO5	Apply big data frameworks on Pig, Hive,HBase and Zookeeper.

CS12P5- PROJECT WORK	
CO1	Demonstrate a sound technical knowledge of their selected project topic.
CO2	Undertake problem identification, formulation and solution.
CO3	Design engineering solutions to complex problems utilising a systems approach.
CO4	Conduct an engineering project
CO5	Demonstrate the knowledge, skills and attitudes of a professional engineer.