



Department of Computer Science

B.Sc. Computer Science

S.No	Course Code	Course Name	Course Outcomes
SEMESTER- I			
1.	23UTAG11	Podhu Tamil / Hindi - I	<p>CO1[K1]: பாரதியார் காலந்தொட்டு தற்காலக் கவிதைகள் வரை கவிதை இலக்கியம் அறிமுகப்படுத்தப்படுவதால் அவற்றை அடையாளம் காண்பர்.</p> <p>CO2[K2]: கவிதை வரலாற்றினை புரிந்து கொண்டு பிழை இல்லாமல் எழுதும் திறன் பெறுவர்.</p> <p>CO3[K3]: இக்கால இலக்கிய வகைகள் மற்றும் இலக்கணம் கற்பதன் மூலம் அவற்றை தம் வாழ்நிலையோடு பொருத்திப் பார்ப்பர்.</p> <p>CO4[K4]: மொழியறிவோடு சிந்தனைத்திறன் பெற்று இலக்கியம் மற்றும் இலக்கணங்களைப் பகுப்பாய்வர்..</p> <p>CO5[K5]: உலகளாவிய இலக்கியங்களைக் கற்று மதிப்பீடு செய்வர்.</p>



2.	23UENL11	General English - I	<p>CO1[K1]: identify the use of the language skills i.e. Reading, Listening, Speaking and Writing.</p> <p>CO2[K2]: demonstrate communicative skills by articulating simple dialogues and instructions.</p> <p>CO3[K3]: apply knowledge of word power and grammar in framing correct sentences.</p> <p>CO4[K4]: analyze prose, poetry and short stories to develop language skills through literature.</p> <p>CO5[K5]: assess the linguistic competence that enables them, in the future, to present their views in various social, academic and employment situations.</p>
3.	23UCSC11	Core Course - I: Python Programming	<p>CO1[K1]: describe the concepts of python</p> <p>CO2[K2]: discuss arrays, control statements, Lists and file handling of python</p> <p>CO3[K3]: apply the concept of python to implement simple problem</p> <p>CO4[K4]: analyze arrays, control statements, lists, tuples, dictionary and functions</p> <p>CO5[K6]: develop a solution for a simple program using python concepts</p>



4.	23UCSC1P	Core Course - II: Practical: Python Programming	CO1[K2]: demonstrate the syntax and semantics of python language CO2[K3]: find out the problem and solve using python programming techniques. CO3[K4]: discover suitable programming constructs for problem solving. CO4[K5]: evaluate various concepts of python language to solve the problem in an efficient way. CO5[K6]: develop a python program for a given problem
5.	23UCSA11	Elective Course Generic / Discipline Specific - I: Discrete Mathematics-I	CO1[K1]: define the discrete objects in the context of mathematical structures for computer science and applications CO2[K2]: recognize the properties of set operations, relations and functions, matrix operations, logic statements, various graphs CO3[K3]: compute various operations on sets, relations, functions, matrices, graphs and truth values of logic statements CO4[K4]: classify the types of relations, functions, matrices, logic statements and graphs CO5[K5]: assess the equivalency of relations, invertibility of functions, tautological implications and equivalence of logic formulae, the method of solving graph optimization problems.



6.	23UCSS11	Skill Enhancement Course - I: Foundation - Programming in C	CO1[K1]: describe various concepts of C CO2[K2]: illustrate the statements, arrays, functions, structures and pointers CO3[K3]: apply simple solutions using appropriate programming control statements of C CO4[K4]: analyze the working of control statements, arrays, functions and pointers CO5[K5]: choose the appropriate way for providing a solution using C
7.	23UCSN11	Skill Enhancement Course II: Non Major Elective Course : Understanding the internet	CO1[K1]: describe the basic concepts of internet CO2[K2]: explain the various features of concept of internet CO3[K3]: write about internet, web, searching and creating web pages CO4[K4]: analyze the applications of internet CO5[K5]: assess the concepts of internet
SEMESTER- II			



8.	23UTAG21	Podhu Tamil / Hindi – II	<p>CO1[K1]: பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினையும், சமய நல்லிணக்கத்தையும் அறிவர்.</p> <p>CO2[K2]: சமயப்பாடல்கள் மற்றும் சிற்றிலக்கியங்களின் அமைப்பினையும், நோக்கத்தினையும் தெளிவாகக் கூறுவர்.</p> <p>CO3[K3]: தமிழில் உள்ள பக்தி இலக்கியம் மற்றும் சிற்றிலக்கியங்களின் பொருண்மைகளுடன் இலக்கணத் தெளிவையும் அடைவர்.</p> <p>CO4[K4]: தமிழ்ச் சமூகப் பண்பாட்டு வரலாற்றினை இலக்கியங்கள் வாயிலாக அறிந்து கொண்டு பாகுபடுத்துவர்.</p> <p>CO5[K5]: போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்குத் தமிழ்ப் பாடத்தினைப் பயன்கொள்ளும் வகையில் ஏற்ற பயிற்சி பெற்று மதிப்பீடு செய்வர்.</p>
9.	23UENL21	General English – II	<p>CO1 [K1]: identify appropriate literary terms such as diction, tone, imagery, figures of speech, motif etc.,</p> <p>CO2 [K2]: define verbs, tenses and concord and its role in speaking and writing effectively.</p> <p>CO3 [K3]: apply the knowledge of language competency at workplace and day-to-day life</p> <p>CO4 [K4]: analyze prose, poetry and short stories to develop language skills through literature.</p> <p>CO5 [K6]: construct grammatically correct and meaningful sentences by choosing apt words.</p>



10.	23UCSC21	Core Course - III: Data Structures & Algorithms	CO1[K1]: describe the concepts of data structures CO2[K2]: explain the working of data structures CO3[K3]: apply the required data structure to solve a problem CO4[K4]: analyze the working of data structures CO5[K5]: choose appropriate data structure to solve a problem.
11.	23UCSC2P	Core Course - IV: Practical: Data Structures & Algorithms	CO1[K2]: demonstrate the concept of data structures CO2[K3]: apply required data structure to solve a problem CO3[K4]: analyze the appropriate data structure to solve a problem CO4[K5]: develop a program involving graphs, trees and heaps. CO5[K6]: construct programs with required data structure algorithm



12.	23UCSA21	Elective Course Generic/ Discipline Specific - II: Discrete Mathematics - II	<p>CO1[K1]: state the basic terminologies of linear programming problem, transportation problem, assignment problem, curve fitting, numerical solutions of polynomial equations</p> <p>CO2[K2]: explain the methods of solving linear programming problem, transportation problem, assignment problem, fitting curve for given data, solving polynomial equations numerically</p> <p>CO3[K3]: find optimal solution of linear programming problem, transportation problem, assignment problem, numerical solution of polynomial equations and a curve that best fit the given data</p> <p>CO4[K4]: examine the optimality of solutions of linear programming problem, transportation problem, assignment problem and the empirical relation of given data</p> <p>CO5[K5]: determine the appropriate method of finding the optimal</p>
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13.	23UCSS2P	Skill Enhancement Course - III: Office Automation	CO1[K2]: demonstrate the options in word, spreadsheet and powerpoint CO2[K3]: apply the various options in office package CO3[K4]: analyze appropriate tools and options to create a neat document, worksheet and presentation CO4[K5]: choose the required tools in word, spreadsheet and powerpoint to produce the required output CO5[K6]: design a simple document, presentation slide and do calculation in Worksheets
14.	23UCSN21	Skill Enhancement Course - IV: Non Major Elective Course: Advanced Excel	CO1[K1]: describe the basic functions, validation techniques, pivot tables, data time functions and charts CO2[K2]: explain the steps for validation, creating pivot tables, charts and syntax of formulas, data time functions CO3[K3]: apply required steps for creating validation, pivot tables, charts CO4[K4]: analyze different chart types, date time functions and various validation techniques CO5[K6]: create an Excel sheet with tables, charts, date time functions, required formulae.
SEMESTER- III			



15.	23UTAG31	Podhu Tamil / Hindi – III	<p>C01[K1]: இலக்கியங்களின் வழி வாழ்வியல் சிந்தனைகள் பற்றி அறிவர்.</p> <p>C02[K2]: காப்பிய சமயக் கருத்துக்களையும் நோக்கங்களையும் அடையாளம் காண்பர்.</p> <p>C03[K3]: தமிழ் புதினங்களின் வழி சமகாலப் படைப்புகளின் வாழ்க்கை முறையின் ஆற்றலைப் பெறுவர்.</p> <p>C04[K4]: காப்பியங்கள் மற்றும் புதினங்களின் வரலாற்றினைப் பாகுபடுத்துவர்.</p> <p>C05[K5]: இலக்கிய இலக்கணங்களை கற்று அவற்றை மதிப்பீடு செய்வர்.</p>
16.	23UENL31	General English – III	<p>C01 [K1]: relate and state ideas by reading simple poems and scenes from Shakespearean plays.</p> <p>C02 [K2]: demonstrate effective speaking skills by listening to speeches of famous personalities and express it in day-to-day life.</p> <p>C03 [K3]: apply the knowledge of language competency in writing letters,emails and display social etiquettes in everyday life.</p> <p>C04 [K4]: analyse data interpretation, meeting etiquettes, organizing and participating in a meeting.</p>



17.	23UCSC3P	Core Course - VI: Practical: Database Management Systems	CO1[K1]: describe the concepts of database systems CO2[K2]: explain the basics of database, design concepts, normalization, SQL, PL/SQL CO3[K3]: apply required SQL, PL/SQL to solve a database problem CO4[K4]: analyze database concepts, ER model, various control structures in PL/SQL CO5[K6]: develop database schema and perform SQL and PL/SQL operations for an simple application
18.	23UCSA31	Elective Course Generic/ Discipline Specific - III: Numerical Methods	CO1[K1]: describe the basic concepts in numerical analysis CO2[K2]: explain the methods of solving algebraic, transcendental, differential equations CO3[K3]: apply numerical methods to obtain approximate solutions of algebraic, transcendental and differential equations, numerical differentiation and integration of given functions CO4[K4]: examine the numerical solution of algebraic, transcendental differential equations, numerical differentiation and integration of functions and interpolating values of the given data CO5[K5]: determine the appropriate method of solving algebraic, transcendental differential equations numerically and integration



19.	23UCSS31	Skill Enhancement Course- V: (Entrepreneurial Skill)- Software Testing	CO1[K1]: describe various types of software testing CO2[K2]: explain the concepts of software testing CO3[K3]: write the required steps to perform various testing CO4[K4]: analyze different testing methods CO5[K5]: assess the appropriate testing method for a given scenario
20.	23UCSS3P	Skill Enhancement Course - VI: Web Designing	CO1[K2]: demonstrate various HTML tags CO2[K3]: apply the required HTML tags and attributes to design a website CO3[K4]: analyze the appropriate HTML tags and CSS to create a neat website. CO4[K5]: choose the required tags, CSS and Ajax technology to create a website. CO5[K6]: develop a web application using HTML, CSS and Ajax
SEMESTER- IV			



21.	23UTAG41	Podhu Tamil / Hindi – IV	<p>C01[K1]: சங்க இலக்கியத்தில் காணப்பெறும் அறக்கருத்துக்களை அறிந்து கொள்வர்.</p> <p>C02[K2]: சங்க இலக்கியங்கள் மற்றும் நாடக இலக்கியம் வாயிலாக மக்களின் வாழ்க்கை முறையினை எடுத்துரைப்பர்.</p> <p>C03[K3]: நாடக இலக்கியம் மூலம் நடிப்பாற்றலையும், கலைத்தன்மையையும், படைப்பாற்றலையும் கற்பர். மேலும் மொழிபெயர்ப்பு ஆற்றலையும் பெறுவர்.</p> <p>C04[K4]: கலைச்சொற்களைக் கண்டறிந்து அவற்றோடு தொடர்புடைய சொல்லைப்பகுப்பர்.</p> <p>C05[K5]: சங்க இலக்கியம் மற்றும் நாடக இலக்கியங்களை மதிப்பீடு செய்வர்.</p>
22.	23UENL41	General English – IV	<p>C01 [K1]: state ideas effectively and appropriately in real life situations.</p> <p>C02 [K2]: demonstrate speaking skills in appreciating literature.</p> <p>C03 [K3]: use grammar and pronunciation effectively and appropriately.</p> <p>C04 [K4]: examine the literary works to develop language skills.</p> <p>C05 [K6]: construct grammatically correct and meaning full sentences.</p>
23.	23UCSC41	Core Course - VII: Industry Module- Java Programming	<p>C01[K1]: describe the various concepts of Java programming</p> <p>C02[K2]: explain the Java Programming paradigms in detail</p> <p>C03[K3]: apply the required Java techniques to solve simple problem.</p> <p>C04[K4]: analyze the concepts of Inheritance, Multithreading, Exception handling and Swings</p> <p>C05[K5]: choose appropriate java constructs to solve a basic problem</p>



24.	23UCSC4P	Core Course - VIII: Practical: Java Programming	CO1[K2]: demonstrate the constructs of Java CO2[K3]: apply the required concepts of Java to solve a simple problem CO3[K4]: analyze various control statements in java CO4[K5]: examine the working Java statements, exception, threading and Swing controls CO5[K6]: create a simple java program
25.	23UCSA41	Elective Course Generic/ Discipline Specific - IV: Microprocessor and Microcontroller	CO1[K1]: describe the basic binary codes and their conversions, binary concepts are used in Microprocessor programming, the architecture of 8085 and 8051 Microcontroller architecture. CO2[K2]: explain the 8085 instruction set and their classifications, 8085 Bus organization, Control Registers, 8085 Interrupts, DMA. CO3[K3]: apply different types of instructions to convert binary codes CO4[K4]: identify how peripheral devices are connected to 8085 using Interrupts and DMA controller, Microcontroller Vs Microprocessor. CO5[K6]: create program for addition, subtraction, Multiplication, Division and Binary, BCD, ASCII conversions in microprocessor
26.	23UCSS4P	Skill Enhancement Course - VII: PHP Programming	CO1[K2]: demonstrate the PHP server side scripts CO2[K3]: apply required PHP constructs to create a server side script CO3[K4]: examine the possible PHP constructs to solve a server side application CO4[K5]: choose PHP scripts to handle HTML forms CO5[K6]: develop dynamic web pages using PHP



27.	23UCSS41	Skill Enhancement Course – VIII: Cyber Forensics	CO1[K1]: recall the concepts of cyber forensics CO2[K2]: explain the cyber forensics fundamentals CO3[K3]: apply the methods for data recovery, evidence collection and data seizure. CO4[K4]: analyze various computer forensic systems CO5[K5]: evaluate the different types of computer forensics technology
28.	23UESR41	Environmental Studies	CO1[K1]: recognize the importance of environment and role of Individuals in its protection. CO2[K2]: explain the key concepts of Ecosystem, biodiversity and climatic change CO3[K3]: apply the right measures for the sustainable use of natural resources. CO4[K4]: analyse the ethical, cross-cultural, and historical context of environmental issues and the links between Human and natural Systems. CO5[K5]: evaluate the impact of human action on the biological
SEMESTER- V			



29.	23UCSC51	Core Course - IX: Software Engineering	<p>CO1[K1]: describe the software engineering principles</p> <p>CO2[K2]: explain the lifecycle models, SRS, software design, coding , testing, quality management and maintenance</p> <p>CO3[K3]: apply software engineering principles and techniques</p> <p>CO4[K4]: analyze various life cycle models, software design, testing methods and Object Oriented Vs Function Oriented design</p> <p>CO5[K5]: evaluate lifecycle models and testing methods</p>
30.	23UCSC52	Core Course - X: .NET Programming	<p>CO1[K1]: describe CLR, C# Fundamental, IDE, web form controls, Rich and validation controls, ADO .Net and Grid View control</p> <p>CO2[K2]: summarize Web Form Controls, File Stream Classes, File Mode & its operations, Data Controls and its Operations and Web application creation</p> <p>CO3[K3]: use .Net features to develop Web Application</p> <p>CO4[K4]: examine various web form controls, Rich and validation controls, ADO .Net and Grid View control , File Stream Classes, File Mode & its operations</p> <p>CO5[K5]: choose appropriate controls web form controls, Rich and validation</p>
31.	23UCSC5P	Core Course - XI: Practical: .NET Programming	<p>CO1[K2]: demonstrate HTML and Web controls</p> <p>CO2[K3]: use .Net features to develop a simple web application</p> <p>CO3[K4]: differentiate HTML and Web Controls in designing a Web Form</p> <p>CO4[K5]: evaluate user input through Web controls, Validation controls and file access</p> <p>CO5[K6]: develop a Software to solve real world problems using ASP.Net</p>



32.	23UCSJ51	Core Course - XII: Project with Viva Voce	CO1[K2]: express their views with ppt illustrations and critical support CO2[K3]: organize the views and solutions as modules of the project CO3[K4]: analyze the various possible solutions of the chosen problem domain CO4[K5]: evaluate the adopted solution with various testing CO5[K6]: compile the development of solution as Documentation
33.	23UCS051	Elective Courses Generic/ Discipline Specific - V: Operating Systems	CO1[K1]: describe the concepts in operating system CO2[K2]: explain the various process involved in operating system CO3[K3]: write about Asynchronous concurrent processes, Semaphores, deadlock algorithms, scheduling and memory management CO4[K4]: analyze various methods to solve mutual exclusion problem, deadlock algorithms, scheduling and memory management CO5[K5]: evaluate appropriate deadlock algorithms, scheduling and memory management techniques for a given situation
34.	23UCS052	Elective Courses Generic/ Discipline Specific - V: Cloud Computing	CO1[K1]: explain the concept of Cloud computing. CO2[K2]: describe the services given by cloud computing. CO3[K3]: use the cloud in designing an application. CO4[K4]: analyze the cloud application in benchmarking and tuning. CO5[K5]: evaluate the application of cloud in various fields.



35.	23UCS053	Elective Courses Generic/ Discipline Specific - VI: Big Data Analytics	CO1[K1]: recognize the evolution of big data. CO2[K2]: discuss the classification and clustering, CO3[K3]: apply and split data using classification and clustering. CO4[K4]: analyze data streams clustering CO5[K5]: evaluate the usage of NOSQL in Big Data
36.	23UCS054	Elective Courses Generic/ Discipline Specific - VI: Introduction to Data Science	CO1[K1]: describe data, data science process, machine learning algorithms and Hadoop CO2[K2]: explain data, data science process, machine learning algorithms and Hadoop CO3[K3]: write about data science process, machine learning algorithms and Hadoop CO4[K4]: analyze different data science process and machine learning algorithms CO5[K5]: justify appropriate data science process and machine learning algorithms



37.	23UVED51	Value Education	<p>C01[K1]: identify the basic human values and ethics necessary for harmonious human relationship</p> <p>C02 [K2]: explain the significance of social values and religious tolerance to live in peace</p> <p>C03[K3]: articulate the life-changing principles of brotherhood, honesty, loyalty and community solidarity</p> <p>C04[K4]: analyse emotional, social, spiritual attribute to acquire well balanced personality</p> <p>C05[K5]: assess the importance of harmonious living in the multi-cultural pluralistic society</p>
38.	23UCSJ52	Internship/Industrial Training	<p>C01[K1]: identify different career paths within the industry and gain insights into potential future roles.</p> <p>C02[K3]: apply theoretical concepts and academic knowledge to real-world situations and challenges encountered during the internship.</p> <p>C03[K4]: analyse problems, generate innovative solutions, and make informed decisions.</p> <p>C04[K5]: evaluate how to manage time effectively and prioritize tasks to meet deadlines and deliver quality work.</p>
SEMESTER- VI			



39.	23UCSC61	Core Course - XIII: Computer Networks	CO1[K1]: define the basics of computer network architecture and different layers CO2[K2]: explain the working of computer network architecture and different layers CO3[K3]: write about various layers, their functions and working CO4[K4]: analyze different layers and its working CO5[K5]: evaluate the working of various network layers
40.	23UCSC62	Core Course - XIV: Machine Learning	CO1[K1]: describe Machine Learning basics, Neural networks and genetic algorithms, Bayes Theorem, Instant based learning CO2[K2]: explain the machine learning concepts and algorithms CO3[K3]: write about various machine learning algorithms and its working CO4[K4]: analyze the various machine learning algorithms CO5[K5]: evaluate the different machine learning algorithms
41.	23UCSC6P	Core Course - XV: Practical: Machine Learning	CO1[K2]: demonstrate the various machine learning algorithms CO2[K3]: apply the procedures required for machine learning algorithms CO3[K4]: analyze the working of various machine learning algorithms CO4[K5]: evaluate appropriate machine learning algorithms for the given datasets CO5[K6]: create solutions using machine learning algorithms for the given datasets.



42.	23UCS061	Elective Courses Generic/ Discipline Specific - VII: Artificial Intelligence	C01[K1]: explain the concepts of AI Techniques C02[K2]: describe the various Search Algorithm, Probabilistic Reasoning, Markov Decision Process, Reinforcement Learning in AI C03[K3]: apply simple AI algorithms C04[K4]: analyze various AI algorithms C05[K5]: evaluate the various search algorithms
43.	23UCS061 23UCS062	Elective Courses Generic/ Discipline Specific - VII: <ol style="list-style-type: none">1. Artificial Intelligence2. Artificial Neural	C01[K1]: explain the basics of artificial neural networks, learning process, single layer and multi-layer perception networks C02[K2]: describe the artificial neural networks, learning process, single layer and multi-layer perception networks C03[K3]: write the artificial neural networks, learning process, single layer and multi-layer perception networks C04[K4]: analyze various neural networks algorithms C05[K5]: justify the artificial neural networks Algorithms
44.	23UCS063	Elective Courses Generic/ Discipline Specific - VIII:IoT and its applications	C01[K1]: describe the IoT terminologies and techniques. C02[K2]: explain the IoT concepts. C03[K3]: write about IoT Components and concepts. C04[K4]: compare various applications of IoT. C05[K5]: evaluate the working of IoT applications.



45.	23UCS064	Elective Courses Generic/ Discipline Specific - VIII: Cryptography	CO1[K1]: describe basics of cryptography, encryption techniques, block cipher and network security practices. CO2[K2]: explain different cryptographic operations, encryption techniques, block cipher and network security practices. CO3[K3]: apply the different cryptographic operations and algorithm CO4[K4]: analyze the various cryptography, encryption techniques CO5[K5]: evaluate the cryptography, encryption techniques
46.	23UCSS6P	Skill Enhancement Course - IX: Professional Competency skill: Enterprise Resource Planning	CO1[K2]: show the basic concepts of ERP. CO2[K3]: apply different technologies used in ERP CO3[K4] : analyze different ERPs CO4[K5]: evaluate the benefits of ERP CO5[K6]: create a simple module in ERP.