



SRI MALOLAN COLLEGE OF ARTS AND SCIENCE

(Affiliated to University of Madras)

(Promoted by Sri Ahobila Mutt)

2.6.1 PSOs and COs 2023 Onwards

Programme Specific Outcomes and Course Outcomes

Department	Programme Specific Outcomes
Mathematics with CA	PSO1: The comprehensive course outline enables the students to enhance computational skills and mathematical reasoning
	PSO2: Mathematics is the culmination of in-depth of knowledge of algebra, calculus, differential equations and several other branches of mathematics. This also leads to selected areas like computer science and statistics
	PSO3: The program develops the ability to think critically, logically and analytically thereby preparing the students to enhanced career opportunities in industries, commerce, education and research
	PSO4: Develop broad and balanced knowledge and understanding of definitions, concepts, principles and theorems
	PSO5: Enhance the ability of learners to apply the knowledge and skills acquired by them during the programme to solve specific theoretical and applied problems in mathematics



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Programme Name: Mathematics with CA		Programme Code: UGMA006	
Subject Code and Subject Name		Course Outcomes	
I Year - I Semester			
100L1A Tamil-I	CO1: சங்க இலக்கியத்தில் காணப்பெறும் வாழ்வியல் சிந்தனைகளை அறிந்துகொள்வர்		
	CO2: அற இலக்கியம் மற்றும் தமிழ் காப்பியங்களின் வழி வாழ்வியல் சிந்தனைகளைப் பெறுவர்		
	CO3: பக்தி இலக்கியங்களைக் கற்பதன் மூலம் பக்தி நெறியினையும், பகுத்தறிவு இலக்கியங்களைக் கற்பதன் வழி நல்லிணக்கத்தையும் தெரிந்து பின்பற்றுவர்		
	CO4: மொழியறிவோடு சிந்தனைத் திறனைப் பெறுவார்		
100L1G Sanskrit-I	CO1: Remember the usage of grammatical tenses in constructing sentences in dialogue		
	CO2: Apply the rules of usage in practice exercises and identify errors		
	CO3: Explain the nuances in the usage of various grammatical tenses and aspects		
	CO4: Demonstrate knowledge of various expressions of opinion, emotions, cause, effect, purpose, and hypothesis in French		
	CO5: Communicate in French and summarize the given text		
100L1Z General English-I	CO1: Acquire self-awareness and positive thinking required in various life situations		
	CO2: Acquire the attribute of empathy		
	CO3: Acquire creative and critical thinking abilities		
	CO4: Development and integrate the use of four language		
	CO5: Learn basic grammar		
135C1A Algebra and Trigonometry	CO1: Classify and Solve reciprocal equations		
	CO2: Find the sum of binomial, exponential and logarithmic series		
	CO3: Find Eigen values, Eigen vectors, verify Cayley – Hamilton theorem and diagonalizable a given matrix		
	CO4: Expand the powers and multiples of trigonometric functions in terms of sine and cosine		
	CO5: Determine relationship between circular and hyperbolic functions and the summation of trigonometric series		
135C1B Calculus	CO1: Evaluate the nth derivative using Leibnitz Rule		
	CO2: Compute Radius and circle of curvature, Evolutes and Maxima – Minima of two variables		

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	<p>CO3: Evaluate integral values by appropriate reduction formula</p> <p>CO4: Identify the multiple integral techniques and evaluate</p> <p>CO5: Evaluate the indefinite integrals using the properties of Beta and Gamma functions</p>
135E1B Python Programming with Practical	<p>CO1: Develop and execute simple Python programs</p> <p>CO2: Write simple Python programs using conditionals and looping for solving problems</p> <p>CO3: Decompose a Python program into functions</p> <p>CO4: Represent compound data using Python lists, tuples, dictionaries etc.</p> <p>CO5: Handle python programming with ease.</p>
135S1A Financial Mathematics	<p>CO1: Apply mathematical concepts and techniques to solve financial problems</p> <p>CO2: Analyse different types of financial instruments and evaluate their risks and returns</p> <p>CO3: Construct investment portfolios and manage risks.</p> <p>CO4: Communicate business information effectively to stakeholders</p> <p>CO5: Understand the ethical and professional standards in the finance industry</p>
100L1M Advance tamil -I	<p>CO1: சமகால இலக்கியங்களின் நோக்குகள்-போக்குகள் குறித்து மாணவர்கள் அறிந்து கொள்வர்</p> <p>CO2: நாட்டுப் புறமக்களின் வாழ்வியல், அறிவாற்றல், இன்றைய நிலை ஆகியவை குறித்துச் சிந்திப்பர்</p> <p>CO3: தங்கள் கற்பனை வளத்தை மாணவர்கள் பெருக்கிக் கொள்வர்</p> <p>CO4: மொழியில் பிழைகள் நேராவண்ணம் எழுதக் கற்றுக் கொள்வதோடு, திறனாய்வு செய்யும் ஆற்றல் பெறுவர்</p> <p>CO5: திரைப்படம், சின்னத்திரை, தொலைக்காட்சி உள்ளிட்ட ஊடகங்களில் பாடல், இசை, எழுத்து, என்று பல்வேறு வேலை வாய்ப்புகள் பெறுவர்</p>
135B1A: Foundation Course - Bridge Mathematics	<p>CO1: Prove the binomial theorem and apply it to find the expansions of any $(x + y)^n$ and also, solve the related problems</p> <p>CO2: Find the various sequences and series and solve the problems related to them. Explain the principle of counting.</p> <p>CO3: Find the number of permutations and combinations in different cases. Apply the principle of counting to solve the problems on permutations and combinations</p> <p>CO4: Explain various trigonometric ratios and find them for different angles, including sum of the angles, multiple and submultiple angles, etc. Also, they can solve the problems using the transformations.</p>

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	CO5: Find the limit and derivative of a function at a point, the definite and indefinite integral of a function. Find the points of min/max of a function.
I Year - II Semester	
100L2A Tamil – II	CO1: புது கவிதை வரலாற்றினை அறிந்து கொள்ளுதல்
	CO2: சிற்றிலக்கியங்களின் வழி இலக்கிய சுவையினையும் பண்பாட்டு அறிவினையும் பெறுவர்
	CO3: தமிழ்மொழியினை பிழையின்றி எழுதவும் புதிய கலைச்சொற்களை உருவாக்கவும் அறிந்துகொள்வர்
	CO4: போட்டித் தேர்வுகளில் வெற்றி பெறுவதற்குத் தமிழ்ப்படத்தினைப் பயன்கொள்ளும் வகையில் பயிற்சிபெறுவர்
100L2G Sanskrit Paper-II	CO1: Understand and apply grammatical concepts in drafting sentences and paragraphs
	CO2: Apply the rules and regulations in handling usage of Lrtlakara and AsmadSabdah, practice exercises and identify errors
	CO3: Form an idea of the aesthetic expressions that make Sanskrit composition get the position of pride in world literature
	CO4: Demonstrate knowledge of various expressions of opinion, emotions, cause, effect, purpose, and hypothesis in Sanskrit
	CO5: Appreciate the art of employment of Alankaras in a prose form of poetry
100L2Z General English- II	CO1: Realize the importance of resilience.
	CO2: Become good decision-makers
	CO3: Imbibe problem-solving skills
	CO4: Use tenses appropriately
	CO5: Use English effectively at the work place
135C2A Analytical Geometry & Vector Analysis	CO1: Solve problems in the system of Planes
	CO2: Estimate the angle between the line and plane, coplanar lines and shortest distance between skew lines.
	CO3: Understand the concept of equation of sphere and its applications.
	CO4: Calculate Directional Derivative, Divergence and Curl
	CO5: Apply Green's theorem, Gauss-Divergence theorem, Stoke's theorem to evaluate Area and Volume
135C2B Number Theory	CO1: Understand the fundamental concepts of Mathematical Induction
	CO2: Evaluate the Greatest common Divisor and Least common multiple using the algorithms
	CO3: Determine and understand the Diophantine equations for three or more unknowns

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	CO4: Demonstrate the quadratic residues, elementary Properties
	CO5: Evaluate and analyze the perfect numbers using the Mersenne and Fermat Numbers
135E2B Java Programming	CO1: Understand the basic Object-oriented concepts
	CO2: Implement the basic constructs of Core Java
	CO3: Implement inheritance, packages, interfaces and exception handling of Core Java
	CO4: Implement multi-threading
	CO5: Implement I/O Streams of Core Java
135E12 Java Programming with Practical	CO1: To Write a Java program to multiply two given matrices
	CO2: Write a java program that implements a multi-thread application that has three threads
	CO3: Generate random numbers between two given limits using Random class and print messages according to the range of the value generated
135S2A Advanced Excel	CO1: Handle large amounts of data
	CO2: Aggregate numeric data and summarise into categories and subcategories
	CO3: Filtering, sorting, and grouping data or subsets of data
	CO4: Create pivot tables to consolidate data from multiple files
	CO5: Presenting data in the form of charts and graphs
135S2B Computational Mathematics	CO1: Develop an understanding of numerical methods for solving mathematical problems
	CO2: Acquire knowledge of programming concepts and the basics of scala language
	CO3: Apply numerical algorithms to solve mathematical problems using scala
100L2M Advanced Tamil - II	CO1: உரைநடை இலக்கியத்தின் பெருமைகளை உணர்ந்து அதன் அன்றாட வாழ்வில் பயன்படுத்தும் திறன்பெறுவார்
	CO2: பண்டைத் தமிழ் இலக்கியங்கள் காட்டும் சமூகமுறைகளை அறிந்துகொள்வர்
	CO3: பண்டைத்தமிழ் இலக்கியங்கள் காட்டும் சமூக முறைகளை அறிந்துகொள்வர்.
	CO4: தமிழ்இலக்கிய மரபினையும் மாற்றங்களையும் ஆய்ந்து உணரும் ஆற்றல்பெறுவார்.
	CO5: மொழிபெயர்ப்புத் திறன் பெறுவதோடு, அன்றாட வாழ்வின் தேவைகளான பல்வகை அலுவலகக் கடிதங்கள் எழுதும் திறன்பெறுவார்

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II Year - III Semester	
200L3A பொதுத்தமிழ்- III	CO1: தமிழக வரலாற்றை அறிந்துகொள்வர்
	CO2: தமிழரின் வாழ்வியல் தொன்மையை அறிவர்
	CO3: தமிழரின் பண்பாட்டுக் கூறுகளை அறிந்துகொள்வர்
	CO4: பிற பண்பாட்டுத் தாக்கம் மற்றும் அணுகு முறைகளை அறிவர்
	CO5: மொழிப்பயிற்சிக்குத் தேவையான இலக்கணங்களைக் கற்பர்
100L3G Sanskrit Paper-III	CO1: Be familiar with the style of great Sanskrit Dramatist Bhasa
	CO2: Be able to appreciate the aesthetical, social, political, cultural, etc., values expressed in prescribed composition
	CO3: Understand the structural patterns of Sanskrit dramatic composition
	CO4: Develop the finer and minor nuances of Nataka form of drama
	CO5: Analyze the literary texts
200L3Z General English-III	CO1: To make them active listeners
	CO2: To enhance the interpersonal relationship skills
	CO3: To embolden them to cope with stress
	CO4: To master grammar skills
	CO5: To help them to use English effectively in a business environment
235C3A Fourier Series & Integral Transforms	CO1: Study the expansion of periodic functions using Fourier Series
	CO2: Analyse Laplace transform and the conditions of existence of Laplace transform
	CO3: Implement the Laplace transform technique to solve differential equations
	CO4: Apply Z transform for difference equations
235C3B Data Structures and Algorithm with Practical	CO1: To introduce the concepts of Data structures and to understand simple linear data structures
	CO2: Learn the basics of stack data structure, its implementation and application
	CO3: Use the appropriate data structure in context of solution of given problem and demonstrate a familiarity with major data structures
	CO4: To introduce the basic concepts of algorithms
	CO5: To give clear idea on algorithmic design paradigms like Divide and conquer and Backtracking
235E3A Mathematics and Computer Graphics	CO1: Understand the core principles of computer graphics, including the role of mathematics in its development and its historical evolution
	CO2: Apply mathematical concepts to coordinate systems and transformations, enabling them to manipulate graphical elements proficiently in 2D and 3D spaces.

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	CO3: Utilize color models, texture mapping, and advanced rendering techniques to enhance the visual quality of computer-generated images.
235S3B Mathematical Modelling	CO1: Understand the fundamentals of mathematical modelling and its significance in addressing realworld problems.
	CO2: Apply mathematical techniques to formulate models that represent complex systems and phenomena.
	CO3: Analyze mathematical models to derive meaningful insights and predictions about real-world scenarios.
	CO4: Adapt and refine models to different application domains, including physics, economics, biology, and social sciences.
	CO5: Demonstrate problem-solving skills by utilizing mathematical modelling as a tool for decisionmaking and innovation.
235S3D Numerical Methods	CO1: Applying the Methods of interpolation to compute the missing value in real life problems.
	CO2: Compute the missing values for unequal intervals using Divided differences and Lagrange Method
	CO3: Apply Numerical Methods to evaluate numerical solution of algebraic and transcendental equations.
	CO4: Compute definite integral for different combinations of integrands using various methods and analyze their accuracy.
	CO5: Evaluate the solution of first order differential equation using Euler, Picard's and Runge – Kutta Methods
II Year - IV Semester	
200L4A பொதுத்தமிழ்-4	CO1: தாய்மொழி வழியாக அறிவியல் பற்றி சிந்திக்கும் திறன் பெற்றிருப்பர்
	CO2: அறிவியல் கலைச் சொல்லாக்கம் பற்றிய விதிகள், நுணுக்கங்களைத் தெரிந்திருப்பர்.
	CO3: அறிவியல் தமிழ்வளர்ச்சியில் மொழிபெயர்ப்பின் பங்குகுறித்து அறிந்திருப்பர்.
	CO4: மொழி அறிவோடு சிந்தனைத் திறனைப்பெறுவர்.
	CO5: மொழிபெயர்ச்சிக்குத் தேவையான இலக்கணங்களைக் கற்பர்
100L4G Sanskrit Paper-IV	CO1: Apply the usage of compound words
	CO2: Differentiate the alankaras
	CO3: Translate the prose passages prescribed
	CO4: Identify and apply different grammatical tenses of “Mahabharata” related translation
	CO5: Analyze and critically assess the literary texts
200L4Z English-IV	CO1: Determine their goals
	CO2: Identify the value of integrity.
	CO3: Deal with emotions.
	CO4: Frame grammatically correct sentences

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	CO5: Write cohesive reports.
235C4A Web Technology (withLab)	CO1: Understand the general concepts of PHP scripting language for the development of Internet Websites
	CO2: Understand the basic functions of MySQL database program
	CO3: Understand the basic concepts of XML
	CO4: Learn to work with Database and SQL
	CO5: Learn the relationship between the client side and the server side scripts
235C4B Ordinary and Partial Differential Equations	CO1: Determine solutions of homogeneous equations, non-homogeneous equations of degree one in two variables, solve Bernoulli's equations and exact differential equations
	CO2: Find the solutions of equations of first order but not of higher degree and to Determine particular integrals of algebraic, exponential, trigonometric functions and their products
	CO3: Find solutions of simultaneous linear differential equations, linear equations of second order and to find solutions using the method of variations of parameters
235E4A Mathematical Statistics	CO1: Apply binomial, poisson and normal distribution properties to solve real life problems.
	CO2: Study the relationship between two or more variables
	CO3: Understand the uses of Large Samples
	CO4: Apply the concept of small sample test to solve real life problems
	CO5: Apply and examine chi-square test and analyse the principles of designs of experiments to yield valid conclusions
235S4B Differential Equations and Applications	CO1: Acquire a strong foundation in differential equations, including ordinary differential equations and partial differential equations
	CO2: Gain Proficiency in solving differential equations analytically and numerically
	CO3: Apply differential equations to model and analyse dynamic processes in physics, engineering and biology
	CO4: Develop problem-solving skills by translating real-world situations into mathematical models
	CO5: Improve critical thinking skills by evaluating the validity and effectiveness of differential equations solutions in practical applications.
235S4D Mathematical Logic and Proof Theory	CO1: Attain comprehensive knowledge of advanced analytics
	CO2: Demonstrate proficiency in machine learning.
	CO3: Exhibit competence in optimization.
	CO4: Understand ethical considerations in analytics
	CO5: Apply analytics concepts to real-world scenarios



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III Year - V Semester	
335C5A Abstract Algebra	CO1: Explain groups, subgroups and cyclic groups.
	CO2: Explain Permutation groups and apply Cayley's theorem to problems
	CO3: Explain Rings, Ideals and Quotient Rings and examine their structure
	CO4: Discuss about the field of quotient of an integral domain and to Explain in detail about Euclidean Rings
335C5B Real Analysis	CO1: Explain the concepts of Continuous and Discontinuous functions, open and close sets, Connectedness, Completeness and Compactness
	CO2: Explain the concepts of bounded and totally bounded sets, continuity of inverse functions and Uniform continuity
	CO3: Define the sets of measure zero, to Explain about the existence and properties of Riemann integral
	CO4: Explain the concept of differentiability and to Explain Rolle's theorem, Law of mean, and Fundamental theorem of calculus
335C5C Mechanics	CO1: Discuss the fundamental concept of forces and apply the concept of Lami's theorem to determine the equilibrium of a particle under three or more forces
	CO2: Explain different forces acting on a rigid body
	CO3: Understand the concepts of velocity, acceleration and composition of S.H.M in two directions
	CO4: Able to derive basic orbited equations and its relationship to the conic Sections
335E5A Operations Research-I	CO1: Analyse and study the concepts in linear programming problems to optimize the solution
	CO2: Examine, Analyse, formulate and evaluate the optimal solutions using various methods in linear programming
	CO3: Evaluate the optimal solution for various industry oriented problems using quantitative and qualitative tools like Modi's method
335E5C Relational Database Management System	CO1: Describe basic concepts of database system
	CO2: Design a Data model and Schemas in RDBMS
	CO3: Competent in use of SQL
	CO4: Analyse functional dependencies for designing robust database
	CO5: Learn different functions, conversion function
III Year - VI Semester	
335C6A Linear Algebra	CO1: Acquire a detailed knowledge about vector spaces and subspaces
	CO2: Explain the concepts of Linear Dependence, Linear Independence, Bases and Dimension of basis
	CO3: Explain the concept of Linear Transformations, their Matrix representation and the notion of dual spaces

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335C6B Complex Analysis	CO1: Explain about analytic functions, their differentiation and continuity and to verify the Harmonic functions using analyticity conditions
	CO2: Explain the concept of Conformal mappings and mappings by linear transformations and linear fractional transformations
	CO3: Find the convergence the sequences and series, to derive Taylor's and Laurent's series
335C6C Discrete Mathematics and Graph Theory	CO1: Prepare Mathematical concepts in terms of predicates, quantifiers, and logical connectives
	CO2: Analyse and Identify the knowledge of lattices and its properties
	CO3: Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra
335E6A Operations Research – II	CO1: Study and analyse the concepts of various inventory models to minimize the cost
	CO2: Analyse and evaluate the profit using inventory models
	CO3: Analyse the various queueing models and evaluate the various system performance measures of queueing to maximize the profit
335E6C Data Science	CO1: Understand the fundamental concepts of data science
	CO2: Evaluate the data analysis techniques for applications handling large data and Demonstrate the data science process
	CO3: Understand the concept of machine learning used in the data science process
	CO4: Visualize and present the inference using various tools.
	CO5: Learn to think through the ethics surrounding privacy, data sharing
335S6A: Mathematics for Competitive Examinations and General Studies	CO1: Able to solve problems in averages
	CO2: Able to solve problems in simple and compound interest
	CO3: Able to solve problems in time and work
	CO4: Able to solve problems in profit and loss
	CO5: Able to solve problems on numbers.