MARIAN COLLEGE KUTTIKKANAM

(AUTONOMOUS)

BSC MATEMATICS

POs, PSOs & COs

Submitted to

THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)

FOURTH CYCLE OF ASSESSMENT

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B Sc MATHEMATICS

PROGRAMME SPECIFIC OUTCOMES (PSO)

PSO1: Demonstrate analytical skills in Algebra, Trigonometry, Calculus, Graph theory, Differential equations, Discrete Mathematics and utilize spatial visualisation and geometric modelling.

PSO2: Organize and interpret real time data and to make proper decisions.

PSO3: Apply appropriate problem solving methodologies for the solution and analysis of problems in the domain of Finance and Accounting, Computer Science, Mathematics and Statistics.

PSO4 : Demonstrate proficiency in C and Python languages, web technology and networking and communication skills.

PSO5 : Enhance employability through linguistic skills, aptitude and logical reasoning skills.

COURSE OUTCOMES (CO)

UCE2001: Essential English for Under Graduates

CO1: Identify the distinct sounds in English words

CO2: Articulate words and sentences clearly stressing the right syllables

CO3: Choose the right words while writing/talking about everyday life

CO4: Write sentences adhering to tense rules

CO5: Correct common errors such as punctuation and capitalization

CO6: Use expressions appropriate for various social occasions

CO7: Identify the key points in a piece of writing

UMA2001M : കഥാസാഹിത്യം

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2001H : Communication, Translation and Applied Grammar

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2001 . Grammar and Translation

CO1: Identify the distinctive sounds in German

CO2: Articulate words with correct pronunciation

CO3: Understand basic grammar

CO4: Develop the skills of reading, writing and listening in German

CO5: Ability to translate from German to English with the help of dialogue patterns, conversations, and short texts, written and oral exercises

UMA2002: Foundation of Mathematics

CO1: define sets and functions

CO2: distinguish between equivalence relations and partial order relations

CO3: analyse statements using truth tables

CO4: construct different methods of proofs

CO5: apply divisibility theory and basic properties of congruence

UMA 2003: Basic Statistics

CO1: Demonstrate appropriate sampling and data collection processes

CO2: Calculate measures of central tendency and dispersion

CO3: Describe the basics of probability theory.

CO4: Compute the probabilities of events using various methods

CO5: Construct index numbers

UMA2004 : introduction to Computer

CO1: Understand various computer types.

CO2: Understand the basics of software systems.

CO3: Use basic features available in excel

CO4: Develop powerpoint presentation using MS PowerPoint

UMA 2005: Fundamentals of Accounting

CO1: Identify the objectives and functions of accounting, accounting concepts and conventions required for the business enterprise.

CO2: Develop the ability to use the fundamental accounting equation to analyze the effect of business transactions on an organization's accounting records.

CO3: Prepare trial balance by understanding the format in order to ensure the arithmetical accuracy.

CO4: Explain the concept and methods of depreciation.

CO5: Create final accounts of the sole proprietorship by understanding the nature of accounts.

UMA 2006: Life Skills

CO1: To develop communication competence

CO2: To develop report writing skills

CO3: To equip them to face interview and Group Discussion

CO4: To use critical thinking process

CO5: To use problem solving skills

CO6: To understand team dynamics and effectiveness.

CO7: To create an awareness on Ethics and Human Values.

UCE2002: Academic and Professional English

CO1: Identify the elements of good academic writing

CO2: Select the right vocabulary for an academic essay

CO3: Write effective thesis statements

CO4: Identify the different strategies employed in shaping an academic essay

CO5: Write brief book reviews

CO6: Write a CVs and cover letters

UMA2007M : കഥാസാഹിത്യം

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2007H : Poetry, Short Story and Novel

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2007G : Grammar, Translation and Communication

CO1: Identify grammatical concepts

CO2: Write sentences adhering to grammatical rules

CO3: Translate simple texts from German into English

CO4: Use German in simple conversations

UMA2008: Analytic Geometry, Trigonometry and Matrices

CO1: develop equation of tangent, normal and locus of a point on a conic

CO2: develop polar equation of a line, circle, tangent and normal to a conic

CO3: separate into real and imaginary parts of a circular and hyperbolic functions of a Complex variable

CO4: solve a system of linear equations using different methods

CO5: identify eigen vectors corresponding to eigen values

CO6: apply Cayley Hamilton theorem

UMA 2009: Theory of Random Variables

CO1: Illustrate and formulate probability density functions and distribution functions for random variables.

CO2: Explain the concepts of expectation and describe their properties.

CO3: Measure skewness and kurtosis of distributions.

CO4: Find the correlation between two variables.

CO5: Identify the nature of relationship between two variables through regression analysis.

UMA2010 : Networking and Web Development

CO1: Understand basics of www

CO2: Develop basic html pages

CO3: Understand and Implements various styling using css

CO4: Understand basics of web development

UMA 2011: Banking and Computerized Accounting

CO1: Discuss the Indian Banking system, basic concepts, various innovations and reforms in banking services.

CO2: Construct Bank Reconciliation Statement.

CO3: Understand the basic concepts of Tally ERP- 9.

CO4: Develop practical skills in the application of Tally Accounting Package.

UMA 2012: Computer Fundamentals

CO1: Use Google Forms.

CO2: Use Google Slides.

CO3: Use Google Document

UMA2013: Tally ERP9 for Beginners

CO1: Equip the students to meet the demand of the industry by introducing them with Tally ERP9.

CO2: Develop practical skills in the application of Tally Accounting Package.

CO3: Prepare final accounts of a company in Tally ERP.

UMA2014M : ദൃശ്യകലാസാഹിത്യം

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2014H : Ancient and Modern Poetry

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2014 : Grammar, German History, Society and Culture

CO1: Understand the history, society and culture of German speaking countries

CO2: Appraise Germany before and after the World War II

CO3: Apply knowledge of grammar

CO4: Comprehend texts at a higher level

UMA2015: Calculus

CO1: Find the higher order derivatives of functions.

CO2: Expand functions using Taylor's and Maclaurin's series.

CO3: Find the partial derivatives of functions.

CO4: Calculate area under the given curve, length of the given arc, volume by slicing and rotation about an axis.

CO5: Solve double integrals and triple integrals using suitable substitutions

UMA 2016: Probability Distributions

CO1: Create an application of probability models to different contexts.

CO2: Demonstrate the fitting of statistical data.

CO3: Analyze various probability distributions and use for data processing.

CO4: Apply the theorems to the data for statistical testing purpose.

CO5: Apply sampling distributions to data analysis.

UMA2017: Programming with C Language

CO1: Understand and implement c language basic

CO2: Implements various string handling functions.

CO3: Implements various operators of c

CO4: Implements functions using c

CO5: Develop programs with Looping and branching statements.

UMA 2018: Advanced Accounting

CO1: Discuss the salient features and nature of Consignment transactions.

CO2: Demonstrate the accounting knowledge in the preparation of branch accounts.

CO3: Explain the basic knowledge of partnership.

CO4: Describe the various forms of reconstitution of partnership.

UMA 2019: indroduction To income Tax

CO1: Understand different aspects of Income Tax

CO2: Calculate the taxable income of a salaried person

UMA2020M : സാഹിത്യരൂപങ്ങൾ

CO1: Understand the literary works.

CO2: Evaluate the literary works.

CO3: Analyze the literary works.

CO4: Create literary contents.

CO5: Apply literary criticism.

UMA2020H :Prose

CO1: Student will be able to think logically and present ordered arguments, reasoned explanations and communicate them clearly

CO2: Student will be able to work and communicate in Hindi

CO3: Student will be able to analyze the social problems

UMA2020 .: German Literature: Selected Readings -Prose and Poetry

CO1: Identify outstanding German writers

CO2: Evaluate the contribution of well-known German writers to the growth of the German language

CO3: Aesthetically appreciate works of German literature

CO4: Use German language with competence and proficiency

UMA 2021: Vector Calculus, Theory of Equations and Numerical Methods

CO1: Calculate the line and surface integrals using fundamental theorem, Green's theorem, Stoke's theorem and Divergence theorem.

CO2: Find partial derivatives, gradients and directional derivatives.

CO3: Find velocity vector, tangent vector, normal vector, torsion and unit binormal vectors

CO4: Apply theorems regarding roots of an equation to solve polynomial equations.

CO5: Find numerical solutions of algebraic and transcendental equations.

UMA 2022: Mathematics For Competitive Examinations and Soft Skills

CO1: Use problem solving techniques for aptitude problems

CO2: Model and make decisions with mathematical, statistical, and quantitative information

CO3: Find HCF, LCM, square and square roots, cube and cube roots of numbers and solution of quadratic equations

CO4: Demonstrate skill in communicating effectively in English

CO5: Write perfect resumes, and also attend the interviews and participate in group discussions with confidence

UMA 2023: Statistical inference

CO1: Discuss the properties of estimators which are needed for further evaluation of probability models.

CO2: Demonstrate various estimation methods which will help in the proper data manipulation.

CO3: Examine interval estimation.

CO4: Apply various statistical testing procedures in real life problems which are helpful in forecasting and decision making.

CO5: Analyze various practical problems statistically in order to reduce errors in data interpretation.

UMA2024 : Python 3 Programming

CO1: Install and Configure Python 3

CO2: Understand and implement basic python

CO3: Implements various python data structure.

CO4: Implements various operators of python

CO5: Develop programs with Looping and branching statements.

UMA 2025: Skill Enhancement in Data Analytics

CO1: Analyze a real life problem and prepare a questionnaire

CO2: Conduct a survey

CO3: Analyze results

CO4: Apply statistical methods and draw conclusions

CO5: Write report in specific format

UMA2026: Mathematical Analysis

CO1: Identify the supremum and infimum of sets, if they exist

CO2: Find the interior and closure of a set

CO3: Distinguish between countable and uncountable sets.

CO4: Examine the convergence of real sequences.

CO5: Develop the basic algebraic and geometric properties of the complex numbers.

UMA2027: Differential Equations

CO1: Find the integrating factor to convert an equation into an exact one and solve the quation.

CO2: Solve linear and Bernoulli equation.

CO3: Solve homogeneous linear differential equations.

CO4: Find the power series solution of the equations.

CO5: Solve dx/P + dy/Q + dz/R.

UMA2028: Abstract Algebra

CO1: Analyse finite groups and abelian groups

CO2: Analyse cyclic groups

CO3: Distinguish between group isomorphism, automorphism and homomorphism

CO4: Analyse ring and field

CO5: Find characteristics of a ring

UMA2029: Environmental Studies and Human Rights

CO1: Describe how our life-support system is maintained by all the species that make up the bio-sphere, so that they are prepared to sustain biodiversity at all costs.

CO2: They develop observation skills and critical thinking and apply them to the analysis of a problem-infested environment.

CO3: They analyse the principles of ecology and the environmental damage to life supportive elements such as air, land and water on a global scale.

CO4: Demonstrate the relation between Fibonacci numbers and nature.

CO5: Describe the human rights and their applications in Indian context.

UMA2030: Applicable Mathematics

CO1: Write ordinary text, mathematical formulae as equations

CO2: Organize texts using formatting comments

CO3: Know insertion of symbols and operators in texts

CO4: Create array, table, header and font

UMA 2032: Real Analysis

CO1: Test the behaviour of infinite series as regards to convergence.

CO2: Examine the continuity and uniform continuity of functions.

CO3: Examine the integrability of real bounded functions on intervals.

CO4: Define the integral of a function as a limit of sums.

CO5: Test the convergence of sequence of functions in intervals.

UMA 2033: Complex Analysis

CO1: Identify the analytic functions

CO2: Solve the integrals of complex functions by applying theorems and results

CO3: Examine the convergence of complex sequence and series.

CO4: Find singular points and their residues.

CO5: Solve improper integrals.

UMA 2034: Discrete Mathematics

CO1: Explain the basic concepts of graphs, trees and connectivity

CO2: Find the matrix representation of a given graph

CO3: Demonstrate various results related to tours, paths and cycles

CO4: Discuss different cryptographic systems.

CO5: Explain posets and lattices.

UMA2035: Linear Algebra and Metric Spaces

CO1: analyse vector space, its basis and dimension

CO2: generate matrix representation of a linear transformation

CO3: distinguish between kernel and image of a linear transformation

CO4: analyse metric space

CO5: analyse complete metric space

UMA2036 A: Operations Research

CO1: understand the significance of OR in Management and Industry

CO2: converts real life situations to mathematical models.

CO3: solve Linear programming problems using graphical method and algebraic method

CO4: apply transportation problem and assignment problem in real life situations

CO5: apply the concept of Game theory in various competitive situations

UMA 2036 B: Topology

CO1: Understand the basic concept of topology and its significance in real life situations

CO2: Develop precise knowledge about closed sets, limit points and Metric topology

CO3: Learn the concept of connected spaces in the real line

CO4: Study the properties of compactness

UMA 2036 C: Theory of Computation

CO1: Understand the basic concept of automata, DFA and NDFA

CO2: Study the concept of Grammar and its applications

CO3: Perform operations on Languages and Automata

CO4: Construct Finite automata equivalent to regular expressions