

<b>Programme Outcomes:</b>		
<b>BSc. Mathematics</b>	<b>PSO1: demonstrate analytical skills in Algebra visualisation and geometric modelling.</b> <b>PSO2: Organize and interpret real time data</b> <b>PSO3: apply appropriate problem solving me</b> <b>Science, Mathematics and Statistics.</b> <b>PSO4: demonstrate proficiency in C and Pyth</b> <b>PSO5: enhance employability through linguist</b>	
<b>Programme Code</b>	<b>Course Code</b>	<b>Course Name</b>
<b>UMA</b>	<b>UMA 1801</b>	<b>Foundation of Mathematics</b>
<b>UMA</b>	<b>UMA 1804</b>	<b>Analytic Geometry, Trigonometry And Matrices</b>

<b>UMA</b>	<b>UMA 1807</b>	<b>Calculus</b>
<b>UMA</b>	<b>UMA 1810</b>	<b>Vector Calculus, Theory of Equations and Numerical Methods</b>
<b>UMA</b>	<b>UMA 1802</b>	<b>Basic Statistics</b>
<b>UMA</b>	<b>UMA 1805</b>	<b>Theory Of Random Variable</b>

<b>UMA</b>	<b>UMA 1808</b>	<b>Probability Distributions</b>
<b>UMA</b>	<b>UMA 1811</b>	<b>Statistical Inference</b>
<b>UMA</b>	<b>UMA1821</b>	<b>MATHEMATIC AL ANALYSIS</b>
<b>UMA</b>	<b>UMA1829</b>	<b>operations research</b>

<b>UMA</b>	<b>UMA1828</b>	<b>Linear algebra and Metric spaces</b>
<b>UMA</b>	<b>UMA1825</b>	<b>REAL ANALYSIS</b>
<b>UMA</b>	<b>UMA1822</b>	<b>Differential equations</b>
<b>UMA</b>	<b>UMA 1823</b>	<b>Abstract Algebra</b>

<b>UMA</b>	<b>UMA 1826</b>	<b>Complex Analysis</b>
<b>UMA</b>	<b>UMA 1824</b>	<b>Applicable Mathematics</b>
<b>UMA</b>	<b>UMA 1818</b>	<b>Mathematics for competitive examinations and soft skills</b>
<b>UMA</b>	<b>UMA 1827</b>	<b>Discrete Mathematics</b>

UMA	UMA1801(M)	കഥാസാഹിത്യം
UMA	UMA1806(M)	കവിത
UMA	UMA1811(M)	ദൃശ്യകലാസാഹിത്യം
UMA	UMA1816(M)	മലയാളഗദ്യരചനകൾ

<b>UMA</b>	<b>UMA1801(H)</b>	<b>communication, translation and applied grammer</b>
<b>UMA</b>	<b>UMA1806(H)</b>	<b>poetry, short story and novel</b>
<b>UMA</b>	<b>UMA1811(H)</b>	<b>Prose and One Act Play</b>
<b>UMA</b>	<b>UMA1816(H)</b>	<b>Culture and Civilization</b>

<b>UMA</b>	<b>UCE1801</b>	<b>Essential English for Under Graduates</b>
<b>UMA</b>	<b>UCE1802</b>	<b>Write CVs and cover letters</b>



Marian College Kuttikkanam(Autonomous)

Department of Mathematics

a, Trigonometry, Calculus, Graph theory, Differential equations, Discrete Mathematics and utilize spatial and to make proper decisions.  
ethodologies for the solution and analysis of problems in the domain of Finance and Accounting, Computer ion languages, web technology and networking and communication skills.  
stic skills, aptitude and logical reasoning skills

### Course Outcomes

**CO1**

**define sets and functions**

**CO2**

**distinguish between equivalence relations and partial order relations.**

**CO3**

**draw Hasse diagram.**

**CO4**

**analyse statements using truth tables.**

**CO5**

**construct simple proofs**

**CO6**

**explain divisibility theory.**

**CO7**

**explain the basic properties of congruence.**

**CO1**

**find the equation to tangent, normal at a point on a conic.**

**CO2**

**find the polar equation of a line, circle, tangent and normal to conics.**

**CO3**

**familiarize real and imaginary parts of a circular and hyperbolic functions of a complex variable.**

**CO4**

**solve a system of linear equations using the inverse of a matrix.**

**CO5**

**familiarize characteristic roots and characteristic vectors.**

**CO6**

**find the inverse of a matrix by Cayley-Hamilton theorem.**

**CO1**

**find the higher order derivatives of the the product of two functions**

**CO2**

**expand a function using Taylor's and Maclaurin's series**

CO3
understand the concept of asymptotes
CO4
find partial derivatives of functions
CO5
find area under the given curve, length of the given arc, volume by slicing and rotation about an axis
CO6
find the multiple integrals of multi variable functions
CO1
Calculate and apply 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
To solve equations using Cardan's method, Ferrare's method and iteration method
CO5
identify relationship between roots and coefficients of a polynomial equation.
CO1
Identify and demonstrate appropriate sampling and data collection processes
CO2
Collect and present data objectively
CO3
Calculate measures of central tendency and dispersion
CO4
Recall the basics of probability theory.
CO5
Use various methods to compute the probabilities of events.
CO6
Construct and display data summaries and index numbers
CO1
Illustrate and formulate fundamental probability distribution and density functions, as well as functions of random variables.
CO2
Explain the concepts of expectation and conditional expectation, and describe their properties.
CO3
Understand moments as a convenient and unifying method for summarizing several descriptive statistical measures.
CO4
4. Find the correlation between two variables.
CO5
Identify the nature of relationship between two variables through regression analysis.
CO1

<b>Discuss the different probability distributions.</b>
CO2
<b>2. Understand how to fit the statistical data.</b>
CO3
<b>Apply Tchebycheff `s inequality, Bernoulli`s law of large numbers and weak law of large numbers</b>
CO4
<b>Use the central limit theorem to approximate probabilities of averages and sums of independent identically-distributed random variables.</b>
CO5
<b>5. Discuss the different sampling distributions.</b>
CO1
<b>Acquire knowledge on Theory of estimation and methods of estimating a parameter.</b>
CO2
<b>Apply Cramer Rao inequality.</b>
CO3
<b>3. Understand interval estimation.</b>
CO4
<b>Construct confidence interval for population parameters.</b>
CO5
<b>test statistical hypotheses.</b>
CO1
<b>Identify the supremum and infimum of sets, if they exist</b>
CO2
<b>Find the limit point of a set.</b>
CO3
<b>Find the interior and closure of a set</b>
CO4
<b>Distinguish between countable and uncountable sets.</b>
CO5
<b>Examine the convergence of real sequences.</b>
CO6
<b>Develop the basic algebraic and geometric properties of the complex numbers.</b>
CO1
<b>Understand the significance of OR in Management and Industry</b>
CO2
<b>Convert real life situations to mathematical models in LPP.</b>
CO3
<b>Solve Linear programming problem by using graphical method and algebraic method</b>
CO4
<b>Solve transportation problem and assignment problem</b>
CO5
<b>Understand concept of Game theory</b>
CO6
<b>Solve pure strategy Games</b>

CO7
Solve mixed strategy problems by principle of dominance
CO1
test the independence of vectors
CO2
find the basis and dimension of a vector space
CO3
find the matrix representation of a linear transformation
CO4
illustrate examples of metric spaces
CO5
distinguish between open sets and closed sets

CO1
Compare series using different comparison tests.
CO2
Examine the continuity and uniform continuity of a function.
CO3
Examine the integrability of functions , integrability of the sum of integrable functions.
CO4
Define integral, refinement and partition.
CO5
Examine the uniform convergence.
CO1
obtain an integrating factor to convert an equation into an exact one
CO2
solve a clairaut's equation
CO3
Solve $dx/P + dy/Q + dz/R$
CO4
find solution about an ordinary point and singular point
CO5
solve homogeneous linear differential equations
CO1
Analyse finite groups
CO2
identify abelian groups
CO3
define cyclic groups.
CO4
identify isomorphic groups.
CO5
explain group homomorphism.
CO6

Identify ring and field
CO7
Find characteristics of a ring
CO1
identify analytic functions
CO2
use elementary complex functions.
CO3
integrate complex functions
CO4
examine the convergence of complex sequence and series.
CO5
find singular points
CO6
find residues
CO7
evaluate improper integrals
CO1
Find HCF, LCM, square and square roots, cube and cube roots of numbers and solution of quadratic equations
CO2
Explain basics of trigonometry and two dimensional geometry
CO3
Use problem solving techniques for aptitude problems
CO4
Find the derivatives and integration of functions
CO5
define outcomes, sample space and events
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
CO1
understand the basic concepts of graph and connectivity
CO2
find the matrix representation of a given graph
CO3
solve problems related to tours, paths and cycles
CO4

<b>understand the basic concepts of cryptography</b>
<b>CO5</b>
<b>find the diagrammatic representation of posets and the product of two posets</b>
<b>CO6</b>
<b>learn different types of lattices</b>
<b>CO1</b>
<b>Understand the literary works. (Novel, Short Stories)</b>
<b>CO2</b>
<b>Evaluate the literary works. (Novel, Short Stories)</b>
<b>CO3</b>
<b>Analyze the literary works. (Novel, Short Stories)</b>
<b>CO4</b>
<b>Create literary contents. (Novel, Short Stories)</b>
<b>CO5</b>
<b>Apply literary criticism. (Novel, Short Stories)</b>
<b>CO1</b>
<b>Understand the literary works. (Poems)</b>
<b>CO2</b>
<b>Evaluate the literary works. (Poems)</b>
<b>CO3</b>
<b>Analyze the literary works. (Poems)</b>
<b>CO4</b>
<b>Create literary contents. (Poems)</b>
<b>CO5</b>
<b>Apply literary criticism. (Poems)</b>
<b>CO1</b>
<b>Understand the literary works. (Theatre Arts)</b>
<b>CO2</b>
<b>Evaluate the literary works. (Theatre Arts)</b>
<b>CO3</b>
<b>Analyze the literary works. (Theatre Arts)</b>
<b>CO4</b>
<b>Initiate creative writing. (Theatre Arts)</b>
<b>CO5</b>
<b>Apply literary criticism. (Theatre Arts)</b>
<b>CO1</b>
<b>Understand language and literature. (Language, Theories, Journalism, Essay writing, Translation, E-Language, General essay, Grammar)</b>
<b>CO2</b>
<b>Evaluate language and literature. (Language, Theories, Journalism, Essay writing, Translation, E-Language, General essay, Grammar)</b>
<b>CO3</b>
<b>Analyze language and literature. (Language, Theories, Journalism, Essay writing, Translation, E-Language, General essay, Grammar)</b>

<b>CO4</b>
<b>Initiate creative writing. (Language, Theories, Journalism, Essay writing, Translation, E-Language, General essay, Grammar)</b>
<b>CO5</b>
<b>Apply language and literature. (Language, Theories, Journalism, Essay writing, Translation, E-Language, General essay, Grammar)</b>
<b>CO1</b>
<b>Understand basic grammar.</b>
<b>CO2</b>
<b>Apply grammatical concepts</b>
<b>CO3</b>
<b>Define grammatical concepts</b>
<b>CO4</b>
<b>Analyze language and literature</b>
<b>CO5</b>
<b>Apply communication skill</b>
<b>CO1</b>
<b>Appreciate literary works</b>
<b>CO2</b>
<b>Analyze various branches of literature</b>
<b>CO3</b>
<b>Initiate creative writing skill</b>
<b>CO4</b>
<b>Apply linguistic and communication skill</b>
<b>CO5</b>
<b>Evaluate literary works</b>
<b>CO1</b>
<b>Appreciate literary works</b>
<b>CO2</b>
<b>Analyze various branches of literature</b>
<b>CO3</b>
<b>Initiate creative writing skill</b>
<b>CO4</b>
<b>Apply linguistic and communication skill</b>
<b>CO5</b>
<b>Evaluate literary works</b>
<b>CO1</b>
<b>Understand concepts of culture and civilization</b>
<b>CO2</b>
<b>Analyze social issues</b>
<b>CO3</b>
<b>Evaluate socio-cultural discrimination</b>
<b>CO4</b>
<b>Apply reasoned explanations and logical thinking</b>

<b>CO5</b>
<b>Apply linguistic and communication skill</b>
<b>CO1</b>
<b>Identify the distinct sounds in English words</b>
<b>CO2</b>
<b>Articulate words and sentences clearly stressing the right syllables</b>
<b>CO3</b>
<b>Choose the right words while writing/talking about everyday life</b>
<b>CO4</b>
<b>Write sentences adhering to tense rules</b>
<b>CO5</b>
<b>Correct common errors such as punctuation and capitalization</b>
<b>CO6</b>
<b>Use expressions appropriate for various social occasions</b>
<b>CO7</b>
<b>Identify the key points in a piece of writing</b>
<b>CO1</b>
<b>Identify the elements of good academic writing</b>
<b>CO2</b>
<b>Select the right vocabulary for an academic essay</b>
<b>CO3</b>
<b>Write effective thesis statements</b>
<b>CO4</b>
<b>Identify the different strategies employed in shaping an academic essay</b>
<b>CO5</b>
<b>Write brief book reviews</b>
<b>CO6</b>
<b>Write a CVs and cover letters</b>