

E.M. GOPALAKRISHNA KONE YADAVA WOMEN'S COLLEGE

An Autonomous Institution -Affiliated to Madurai Kamaraj University

Re-accredited (3rd Cycle) with Grade A⁺ & CGPA 3.51 by NAAC



LESSON PLAN
2023-2024

DEPARTMENT OF MATHEMATICS

(UG – Even Semester)



E.M.GOPALAKRISHNA KONE YADAVA WOMEN'S COLLEGE
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DEPARTMENT OF MATHEMATICS
I - B.SC MATHEMATICS
LESSON PLAN
2023-2024

Sub. Code : 23OUMA21
Title of the Paper: ANALYTICAL GEOMETRY (Two & Three Dimensions)
Total Hours : 75
Stream: Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Pole, Polar - conjugate points and conjugate lines - diameters - conjugate diameters of an ellipse - semi diameters - conjugate diameters of hyperbola.	15	Chalk & Talk	R. R. Subhaya
Jan	II	: Polar coordinates: General polar equation of straight line - Polar equation of a circle given a diameter, Equation of a straight line, circle, conic - Equation of chord, tangent, normal.	15	Chalk & Talk	R. R. Subhaya
Feb	III	System of Planes - Length of the perpendicular - Orthogonal projection.	15	Chalk & Talk	R. R. Subhaya
March	IV	Representation of line - angle between a line and a plane - coplanar lines - shortest distance between two skew lines - length of the perpendicular - intersection of three planes.	15	Chalk & Talk	R. R. Subhaya
April	V	Equation of a sphere - general equation - section of a sphere by a plane - equation of the circle - tangent plane - angle of intersection of two spheres - condition for the orthogonality - radical plane.	15	Chalk & Talk	R. R. Subhaya

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R. R. Subhaya
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DEPARTMENT OF MATHEMATICS

I - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 23OUMA22

Title of the Paper: INTEGRAL CALCULUS

Total Hours: 60

Stream-Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	UNIT-I: Reduction formulae -Types, integration of product of powers of algebraic and trigonometric functions, integration of product of powers of algebraic and logarithmic functions- Bernoulli's formula, Feynman's technique of integration.	12	Chalk & Talk	
Jan	II	UNIT-II: Multiple Integrals - definition of double integrals evaluation of double integrals – double integrals in polar coordinates - Change of order of integration.	12	Chalk & Talk	
Feb	III	UNIT-III: Triple integrals . – applications of multiple integrals volumes of solids of revolution- areas of curved surfaces-change of variables - Jacobian.	12	Chalk & Talk	
Mar	IV	UNIT-IV: Beta and Gamma functions– infinite integral definitions–recurrence formula of Gamma functions – properties of Beta and Gamma functions-relation between Beta and Gamma functions- Applications.	12	Chalk & Talk	
Apr	V	UNIT-V: Geometric and Physical Applications of Integral calculus.	12	Chalk & Talk	

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DEPARTMENT OF MATHEMATICS

I - B.Sc., Mathematics
LESSON PLAN
2023-2024

Sub. Code: 23OUMASECN2

Title of the Paper: Mathematics for Competitive Examinations-II

Total Hours:30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Ratio and Proportions	6	Chalk & Talk	S. Selvi
Jan	II	Time and work, Time and Distance	6	Chalk & Talk	S. Selvi
Feb	III	Simple interest and Compound interest	6	Chalk & Talk	S. Selvi
Mar	IV	Logarithms	6	Chalk & Talk	S. Selvi
Apr	V	Calendar	6	Chalk & Talk	S. Selvi

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DEPARTMENT OF MATHEMATICS

I - B.Sc., Mathematics - Regular

LESSON PLAN

2023-2024

Sub. Code: 23OUMASEC3

Title of the Paper: Computation Mathematics

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Fundamental principles of counting- The sum rule and product rule – permutations	7	Chalk & Talk	A. Manickavally
Jan	II	Combinations - Permutations and combinations with Repetitions- The Binomial Theorem –(Problems).	7	Chalk & Talk	A. Manickavally
Feb	III	The Principles of inclusion and exclusion-problems-The pigeon hole principle.	6	Chalk & Talk	A. Manickavally
March	IV	Generating functions-partitions of integers-The exponential generating function-The summation operator – problems.	5	Chalk & Talk	A. Manickavally
April	V	Recurrence Relations-The first order linear recurrence relation -The nonhomogeneous recurrence relations.	5	Chalk & Talk	A. Manickavally

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DEPARTMENT OF MATHEMATICS
II - B.SC MATHEMATICS
LESSON PLAN
2023-2024

Sub. Code : 22OUMA1
Title of the Paper: Sequences and Series
Total Hours : 75
Stream: Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Sets and functions-intervals in R- Bounded Sets-Least Upper Bound and Greatest Lower Bound Inequalities-Triangle Inequalities-Cauchy – Schwarz Inequalities.	15	Chalk & Talk	R.R. Subramanyam
Jan	II	Sequences- Bounded, Monotonic Sequences-Convergent Sequences-Divergent and Oscillating Sequences-Algebra of limits.	15	Chalk & Talk	R.R. Subramanyam
Feb	III	Behaviour of monotonic sequences-Sum theorems on limits – Subsequences – Limit Points - Cauchy sequences.	15	Chalk & Talk	R.R. Subramanyam
March	IV	Series of positive terms-Infinite series– Comparison test – Kummer's test – Root test and Condensation test- Integral test.	15	Chalk & Talk	R.R. Subramanyam
April	V	Alternating series – Absolute convergence – Tests for convergence of series of arbitrary terms.	15	Chalk & Talk	R.R. Subramanyam


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DEPARTMENT OF MATHEMATICS

II - B.Sc., Mathematics
LESSON PLAN
2023-2024

Sub. Code: 22OUMADSE4A

Title of the Paper: Number Theory

Total Hours: 60

Stream: Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Introduction –Divisibility, Prime and Composite numbers-Congruences - Defenition-Residue classes-complete and least residue systems –reduced residue systems-casting out 9-magic numbers-Divisibility tests	12	Chalk & Talk	R. Meera
Jan	II	Congruences – linear congruences- solution of congruences-Chinese remainder theorem. Theorems of Fermat and Wilson- Little Fermat's theorem-Euler's extension	12	Chalk & Talk	R. Meera
Feb	III	Theorems of Fermat and Wilson- Inverse modulo-Wilson's theorem and its converse Lagrange's theorem – Wolstenholme theorem. Algebraic Congruences- Factor theorem for polynomials-Number of solutions	12	Chalk & Talk	R. Meera
Mar	IV	Algebraic Congruences-Congruences of prime power moduli-Composite moduli-identical congruence-conditional congruences- multiple roots	12	Chalk & Talk	R. Meera
Apr	V	Quadratic Reciprocity- Quadratic residues and nonresidues –Euler criterion-Primitive root is a quadratic non residue –Legendre symbol	12	Chalk & Talk	R. Meera

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DEPARTMENT OF MATHEMATICS

II- B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 22OUMASE4

Title of the Paper: Applications of Differential Equations

Stream: Regular

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Orthogonal Trajectories	6	Chalk & Talk	R.M.
Jan	II	Growth and decay	6	Chalk & Talk	R.M.
Feb	III	Continuous Compound Interest-The Brachistochrone problem	6	Chalk & Talk	R.M.
Mar	IV	Simple Electric Circuits-Falling Bodies	6	Chalk & Talk	R.M.
Apr	V	Simple Harmonic Motion-Simple Pendulum	6	Chalk & Talk	R.M.

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DEPARTMENT OF MATHEMATICS
III- B.SC MATHEMATICS
LESSON PLAN
2023-2024

Sub. Code : 21MA61
Title of the Paper: Complex Analysis
Total Hours : 75
Stream: Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Analytic functions: Functions of a complex variable – Limits – Theorems on limit – Continuous functions – Differentiability – The Cauchy Riemann equations - Analytic Functions Harmonic functions.	15	Chalk & Talk	R.P. Subramanyam
Jan	II	Bilinear transformations: Elementary transformations – Bilinear transformations – Cross ratio Fixed points of bilinear transformations – Some special bilinear transformations	15	Chalk & Talk	R.P. Subramanyam
Feb	III	Complex Integration: Definite integral – Cauchy's theorem – Cauchy's integral formula – Higher derivatives.	15	Chalk & Talk	R.P. Subramanyam
March	IV	Series expansions – Taylor's series – Laurent's series – Zeros of an analytic function – Singularities	15	Chalk & Talk	R.P. Subramanyam
April	V	Calculus of residues: Residues – Cauchy's Residue theorem – Evaluation of definite integrals (Type I only)	15	Chalk & Talk	R.P. Subramanyam


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III- B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21M62

Title of the Paper: Statistics –II

Stream: Regular

Total Hours: 90

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Random Variables: Discrete Random Variables – Continuous Random Variables - Mathematical Expectations – Moment Generating Functions- Characteristic Function.	18	Chalk & Talk	
Jan	II	Some special distributions: Binomial Distributions – Poisson Distributions- Normal Distributions –Some More Continuous Distributions (Gamma distribution ,Chi Square distribution , Student's -t distribution, Snedecor's-F distribution and Fischer's, Z-distributions).	18	Chalk & Talk	
Feb	III	Test of significance (Large samples): Sampling – Sampling Distribution – Testing of Hypothesis – Procedure for Testing of Hypothesis for Large Sample	18	Chalk & Talk	
Mar	IV	Test of Significance (Small samples): Test of significance based on t-distribution(t-test) – Test for significance based on F-test – Test for significance of an observed sample Correlation	18	Chalk & Talk	
Apr	V	Test based on χ^2 - distribution: χ^2 -Test- χ^2 -Test to test the goodness of fit-Test for independence of Attributes. Analysis of variance: One criterion of classification- two criteria of classification.	18	Chalk & Talk	

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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21M63

Title of the Paper: Numerical Methods

Total Hours:90

Stream: Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Algebraic and Transcendental Equations - Introduction - Iteration Method - Bisection Method – Regula Falsi method -- Newton- Raphson Method . Simultaneous Equations – Simultaneous Equations - Back substitution - Gauss Elimination Method – Gauss Jordan Elimination Method – Iterative methods (Gauss Jacobi Iteration Method)– Gauss-Seidal Iteration Method .	18	Chalk & Talk	
Jan	II	Finite Differences –Difference operators - Other Difference operators.	18	Chalk & Talk	
Feb	III	Interpolation - Newton's Interpolation Formula - Lagrange's Interpolation formula - Divided Differences - Newton's Divided differences formula – Inverse Interpolation.	18	Chalk & Talk	
Mar	IV	Numerical Differentiation and Integration – Derivatives using Newton's forward difference formula – Derivatives using Newton's backward difference formula - Derivatives using central difference formula – Maxima and minima of the interpolating polynomial – Numerical integration – Newton-Cote's quadrature formula - Trapezoidal rule - Simpson's one third rule - Simpson's three eight rule.	18	Chalk & Talk	
Apr	V	Numerical Solutions of Ordinary Differential Equations – Taylor's Series Method – Picard's Method - Euler's Method – Runge-Kutta Methods	18	Chalk & Talk	

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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21AA61

Title of the Paper: Object Oriented Programming with C++

Total Hours: 60

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Principles of OOP: Introduction to OOP concepts – Tokens – Keywords – Identifiers – Constants – Expressions – If statement – switch statement – do, while statements	12	Chalk & Talk	A. Manickavel
Jan	II	Functions in C++: Main function – function prototyping – Call by reference – Return by reference – inline function – default argument – Constant argument – Recursion – Function Overloading – Friend and virtual function – Math Library function.	12	Chalk & Talk	A. Manickavel
Feb	III	Classes, Objects, Constructor and Destructor: Define a class – Member functions – Making an outside function inline – nesting of member function – private member function – Arrays within a class – memory allocation for objects - Static data members - member function - Array of objects-Objects as function arguments - Friendly function - Constructor – Destructor.	12	Chalk & Talk	A. Manickavel
March	IV	Operator Overloading and Inheritance: Overloading Unary and Binary operators – Overloading binary operators using friend function- Rules for Overloading operators – Inheritance defining derived classes – Single Inheritance – making a private member inheritable – multilevel, multiple inheritance – abstract classes.	12	Chalk & Talk	A. Manickavel

April	V	Pointers, Virtual functions and files: Pointers – Pointers to objects – this pointer – pointers to derived classes – Virtual functions – Files – Classes for file stream operations – Opening and closing a file.	12	Chalk & Talk	<i>A. Panickavally</i>
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A. Panickavally
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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics - Regular

LESSON PLAN


2023-2024

Sub. Code: 21AA6P

Title of the Paper: C++ Practical

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	I	Program to convert the value of Fahrenheit into Celsius - program to calculate the Standard Deviation - program to display the numbers using for loop	6	Chalk & Talk	A. Manickavally
Feb	II	Program to check whether the given number is a palindrome - program to calculate the factorial of a given number using recursion function - program to find the largest value using nesting function	6	Chalk & Talk	A. Manickavally
March	III	Program to find the sum and difference of two numbers using member function - program to display the number using constructor and destructor.	6	Chalk & Talk	A. Manickavally
April	IV	Program to display the employee details - program using object as pointer for displaying students results.	6	Chalk & Talk	A. Manickavally
May	V	Program to add the two complex numbers - program to find student mark details using array within a class.	6	Chalk & Talk	A. Manickavally


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DEPARTMENT OF MATHEMATICS

III- B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21SEM61

Title of the Paper: Discrete Mathematics

Total Hours: 75

Stream : Regular

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Introduction- TF statements - Connectives	6	Chalk & Talk	
Jan	II	Atomic and compound statements-Well formed (statement) formulae - Truth table of a formula - Tautology- Tautological Implication and equivalence of formulae	6	Chalk & Talk	
Feb	III	Lattices-Some Properties of Lattices-New Lattices	6	Chalk & Talk	
March	IV	Modular and Distributive Lattices - Boolean Algebra	6	Chalk & Talk	
April	V	Recurrence –an introduction – Recurrence Relation – Worked Examples	6	Chalk & Talk	

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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics - Regular

LESSON PLAN

2023-2024

Sub. Code: 21SEM62

Title of the Paper: Combinatorics

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Rules of sum and product	6	Chalk & Talk	N. Uma Maheswari
Jan	II	Permutations – Combinations - Permutations and combinations with Repetitions.	6	Chalk & Talk	N. Uma Maheswari
Feb	III	The Binomial Theorem – Pascal's identity – Vander Monde's identity.	6	Chalk & Talk	N. Uma Maheswari
March	IV	The multinomial theorem – Ramsey Number	6	Chalk & Talk	N. Uma Maheswari
April	V	The Catalan Numbers – Stirling Numbers and Bell Numbers.	6	Chalk & Talk	N. Uma Maheswari

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DEPARTMENT OF MATHEMATICS
I - B.SC MATHEMATICS
LESSON PLAN
2023-2024


Sub. Code : 23OUMA21


Title of the Paper: ANALYTICAL GEOMETRY (Two & Three Dimensions)

Total Hours : 75

Stream: Self-finance

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Pole, Polar - conjugate points and conjugate lines - diameters - conjugate diameters of an ellipse - semi diameters - conjugate diameters of hyperbola.	15	Chalk & Talk	R.R. Subhany
Jan	II	: Polar coordinates: General polar equation of straight line - Polar equation of a circle given a diameter, Equation of a straight line, circle, conic - Equation of chord, tangent, normal.	15	Chalk & Talk	R.R. Subhany
Feb	III	System of Planes - Length of the perpendicular - Orthogonal projection.	15	Chalk & Talk	R.R. Subhany
March	IV	Representation of line - angle between a line and a plane - coplanar lines - shortest distance between two skew lines - length of the perpendicular - intersection of three planes.	15	Chalk & Talk	R.R. Subhany
April	V	Equation of a sphere - general equation - section of a sphere by a plane - equation of the circle - tangent plane - angle of intersection of two spheres - condition for the orthogonality - radical plane.	15	Chalk & Talk	R.R. Subhany


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I - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 23OUMA22

Title of the Paper: INTEGRAL CALCULUS

Total Hours: 60

Stream-Self Finance

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	UNIT-I: Reduction formulae -Types, integration of product of powers of algebraic and trigonometric functions, integration of product of powers of algebraic and logarithmic functions- Bernoulli's formula, Feynman's technique of integration.	12	Chalk & Talk	R.M
Jan	II	UNIT-II: Multiple Integrals - definition of double integrals evaluation of double integrals – double integrals in polar coordinates - Change of order of integration.	12	Chalk & Talk	R.M
Feb	III	UNIT-III: Triple integrals – applications of multiple integrals volumes of solids of revolution- areas of curved surfaces – change of variables - Jacobian.	12	Chalk & Talk	R.M
Mar	IV	UNIT-IV: Beta and Gamma functions – infinite integral definitions – recurrence formula of Gamma functions – properties of Beta and Gamma functions – relation between Beta and Gamma functions – Applications.	12	Chalk & Talk	R.M
Apr	V	UNIT-V: Geometric and Physical Applications of Integral calculus.	12	Chalk & Talk	R.M

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DEPARTMENT OF MATHEMATICS

I - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 23OUMASEC3

Title of the Paper: Computation Mathematics

Stream: Self-Finance

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Fundamental principles of counting-The sum rule and product rule – permutations	7	Chalk & Talk	A. Manickavally
Jan	II	Combinations - Permutations and combinations with Repetitions- The Binomial Theorem –(Problems).	7	Chalk & Talk	A. Manickavally
Feb	III	The Principles of inclusion and exclusion-problems-The pigeon hole principle.	6	Chalk & Talk	A. Manickavally
March	IV	Generating functions-partitions of integers-The exponential generating function-The summation operator – problems.	5	Chalk & Talk	A. Manickavally
April	V	Recurrence Relations-The first order linear recurrence relation -The nonhomogeneous recurrence relations.	5	Chalk & Talk	A. Manickavally

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II - B.SC MATHEMATICS
LESSON PLAN
2023-2024

Sub. Code : 22OUMA1
Title of the Paper: Sequences and Series
Total Hours : 75
Stream: Self-finance

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Sets and functions-intervals in R- Bounded Sets-Least Upper Bound and Greatest Lower Bound Inequalities-Triangle Inequalities-Cauchy –Schwarz Inequalities.	15	Chalk & Talk	R.R. Subramanyam
Jan	II	Sequences- Bounded, Monotonic Sequences-Convergent Sequences-Divergent and Oscillating Sequences-Algebra of limits.	15	Chalk & Talk	R.R. Subramanyam
Feb	III	Behaviour of monotonic sequences-Sum theorems on limits – Subsequences – Limit Points - Cauchy sequences.	15	Chalk & Talk	R.R. Subramanyam
March	IV	Series of positive terms-Infinite series– Comparison test – Kummer's test – Root test and Condensation test- Integral test.	15	Chalk & Talk	R.R. Subramanyam
April	V	Alternating series – Absolute convergence – Tests for convergence of series of arbitrary terms.	15	Chalk & Talk	R.R. Subramanyam


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DEPARTMENT OF MATHEMATICS

II - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 22OUMADSE4A

Title of the Paper: Number Theory

Total Hours: 60

Stream: Self Finance

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Introduction –Divisibility, Prime and Composite numbers-Congruences - Defenition-Residue classes-complete and least residue systems –reduced residue systems-casting out 9-magic numbers-Divisibility tests	12	Chalk & Talk	R-M
Jan	II	Congruences – linear congruences- solution of congruences-Chinese remainder theorem. Theorems of Fermat and Wilson- Little Fermat's theorem-Euler's extension	12	Chalk & Talk	R-M
Feb	III	Theorems of Fermat and Wilson- Inverse modulo-Wilson's theorem and its converseLagrange's theorem – Wolstenholme theorem. Algebraic Congruences- Factor theorem for polynomials-Number of solutions	12	Chalk & Talk	R-M
Mar	IV	Algebraic Congruences-Congruences of prime power moduli-Composite moduli-identical congruence- conditional congruences- multiple roots	12	Chalk & Talk	R-M
Apr	V	Quadratic Reciprocity- Quadratic residues and nonresidues –Euler criterion-Primitive root is a quadratic non residue –Legendre symbol	12	Chalk & Talk	R-M

P.M.T.

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DEPARTMENT OF MATHEMATICS

II - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 22OUMASE4

Title of the Paper: Applications of Differential Equations

Stream: Self-Finance

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Orthogonal Trajectories	6	Chalk & Talk	R. M.
Jan	II	Growth and decay	6	Chalk & Talk	R. M.
Feb	III	Continuous Compound Interest-The Brachistochrone problem	6	Chalk & Talk	R. M.
Mar	IV	Simple Electric Circuits-Falling Bodies	6	Chalk & Talk	R. M.
Apr	V	Simple Harmonic Motion-Simple Pendulum	6	Chalk & Talk	R. M.

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DEPARTMENT OF MATHEMATICS
III - B.SC MATHEMATICS
LESSON PLAN
2023-2024

Sub. Code : 21MA61
Title of the Paper: Complex Analysis
Total Hours : 75
Stream: Self-finance

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Analytic functions: Functions of a complex variable – Limits – Theorems on limit – Continuous functions – Differentiability – The Cauchy Riemann equations - Analytic Functions Harmonic functions.	15	Chalk & Talk	R.R. Subhaya
Jan	II	Bilinear transformations: Elementary transformations – Bilinear transformations – Cross ratio Fixed points of bilinear transformations – Some special bilinear transformations	15	Chalk & Talk	R.R. Subhaya
Feb	III	Complex Integration: Definite integral – Cauchy's theorem – Cauchy's integral formula – Higher derivatives.	15	Chalk & Talk	R.R. Subhaya
March	IV	Series expansions – Taylor's series – Laurent's series – Zeros of an analytic function – Singularities	15	Chalk & Talk	R.R. Subhaya
April	V	Calculus of residues: Residues – Cauchy's Residue theorem – Evaluation of definite integrals(Type I only)	15	Chalk & Talk	R.R. Subhaya

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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21M62

Title of the Paper: Statistics –II

Stream: Self-Finance

Total Hours: 90

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Random Variables: Discrete Random Variables – Continuous Random Variables - Mathematical Expectations – Moment Generating Functions- Characteristic Function.	18	Chalk & Talk	P. S. P.
Jan	II	Some special distributions: Binomial Distributions – Poisson Distributions- Normal Distributions –Some More Continuous Distributions (Gamma distribution , Chi Square distribution , Student's –t distribution, Snedecor's-F distribution and Fischer's, Z-distributions).	18	Chalk & Talk	P. S. P.
Feb	III	Test of significance (Large samples): Sampling – Sampling Distribution – Testing of Hypothesis – Procedure for Testing of Hypothesis for Large Sample	18	Chalk & Talk	P. S. P.
Mar	IV	Test of Significance (Small samples): Test of significance based on t-distribution(t-test) – Test for significance based on F-test – Test for significance of an observed sample Correlation	18	Chalk & Talk	P. S. P.
Apr	V	Test based on χ^2 - distribution: χ^2 -Test- χ^2 -Test to test the goodness of fit-Test for independence of Attributes. Analysis of variance: One criterion of classification- two criteria of classification.	18	Chalk & Talk	P. S. P.

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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21M63

Title of the Paper: Numerical Methods

Total Hours:90

Stream: Self-Finance

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Algebraic and Transcendental Equations - Introduction - Iteration Method - Bisection Method – Regula Falsi method -- Newton- Raphson Method . Simultaneous Equations – Simultaneous Equations - Back substitution - Gauss Elimination Method – Gauss Jordan Elimination Method – Iterative methods (Gauss Jacobi Iteration Method)– Gauss-Seidal Iteration Method .	18	Chalk & Talk	P. R. P.
Jan	II	Finite Differences –Difference operators - Other Difference operators.	18	Chalk & Talk	P. R. P.
Feb	III	Interpolation - Newton's Interpolation Formula - Lagrange's Interpolation formula - Divided Differences - Newton's Divided differences formula – Inverse Interpolation.	18	Chalk & Talk	P. R. P.
Mar	IV	Numerical Differentiation and Integration – Derivatives using Newton's forward difference formula – Derivatives using Newton's backward difference formula - Derivatives using central difference formula – Maxima and minima of the interpolating polynomial – Numerical integration – Newton-Cote's quadrature formula - Trapezoidal rule - Simpson's one third rule - Simpson's three eight rule.	18	Chalk & Talk	P. R. P.
Apr	V	Numerical Solutions of Ordinary Differential Equations – Taylor's Series Method – Picard's Method - Euler's Method – Runge-Kutta Methods	18	Chalk & Talk	P. R. P.

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DEPARTMENT OF MATHEMATICS

III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21AA61

Title of the Paper: Object Oriented Programming with C++

Stream: Self-Finance

Total Hours: 60

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Principles of OOP: Introduction to OOP concepts – Tokens – Keywords – Identifiers – Constants – Expressions – If statement – switch statement – do, while statements	12	Chalk & Talk	A. Manickavally
Jan	II	Functions in C++: Main function – function prototyping – Call by reference – Return by reference – inline function – default argument – Constant argument – Recursion – Function Overloading – Friend and virtual function – Math Library function.	12	Chalk & Talk	A. Manickavally
Feb	III	Classes, Objects, Constructor and Destructor: Define a class – Member functions – Making an outside function inline – nesting of member function – private member function – Arrays within a class – memory allocation for objects - Static data members - member function - Array of objects-Objects as function arguments - Friendly function - Constructor – Destructor.	12	Chalk & Talk	A. Manickavally
March	IV	Operator Overloading and Inheritance: Overloading Unary and Binary operators – Overloading binary operators using friend function- Rules for Overloading operators – Inheritance defining derived classes – Single Inheritance – making a private member	12	Chalk & Talk	A. Manickavally

		inheritable – multilevel, multiple inheritance – abstract classes.			
April	V	Pointers, Virtual functions and files: Pointers – Pointers to objects – this pointer – pointers to derived classes – Virtual functions – Files – Classes for file stream operations – Opening and closing a file.	12	Chalk & Talk	A. Manickavelu

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III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21AA6P

Title of the Paper: C++ Practical

Stream: Self-Finance

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Jan	I	Program to convert the value of Fahrenheit into Celsius - program to calculate the Standard Deviation - program to display the numbers using for loop	6	Chalk & Talk	A. Harickavally
Feb	II	Program to check whether the given number is a palindrome - program to calculate the factorial of a given number using recursion function - program to find the largest value using nesting function	6	Chalk & Talk	A. Harickavally
March	III	Program to find the sum and difference of two numbers using member function - program to display the number using constructor and destructor.	6	Chalk & Talk	A. Harickavally
April	IV	Program to display the employee details - program using object as pointer for displaying students results.	6	Chalk & Talk	A. Harickavally
May	V	Program to add the two complex numbers - program to find student mark details using array within a class.	6	Chalk & Talk	A. Harickavally

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DEPARTMENT OF MATHEMATICS

III- B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21SEM61

Title of the Paper: Discrete Mathematics

Stream : Self-finance

Total Hours: 75

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Introduction- TF statements - Connectives	6	Chalk & Talk	
Jan	II	Atomic and compound statements-Well formed (statement) formulae - Truth table of a formula - Tautology– Tautological Implication and equivalence of formulae	6	Chalk & Talk	
Feb	III	Lattices-Some Properties of Lattices-New Lattices	6	Chalk & Talk	
March	IV	Modular and Distributive Lattices - Boolean Algebra	6	Chalk & Talk	
April	V	Recurrence –an introduction – Recurrence Relation – Worked Examples	6	Chalk & Talk	

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III - B.Sc., Mathematics

LESSON PLAN

2023-2024

Sub. Code: 21SEM62

Title of the Paper: Combinatorics

Stream: Self-Finance

Total Hours: 30

Month	Unit	Description Of The Syllabus	Hours Allocated	Teaching Mode & Methods	Course Teacher Signature
Dec	I	Rules of sum and product	6	Chalk & Talk	N-Uma Maheswari
Jan	II	Permutations – Combinations - Permutations and combinations with Repetitions.	6	Chalk & Talk	N-Uma Maheswari
Feb	III	The Binomial Theorem – Pascal's identity – Vander Monde's identity.	6	Chalk & Talk	N-Uma Maheswari
March	IV	The multinomial theorem – Ramsey Number	6	Chalk & Talk	N-Uma Maheswari
April	V	The Catalan Numbers – Stirling Numbers and Bell Numbers.	6	Chalk & Talk	N-Uma Maheswari

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