Government College,Mangali

Lesson Plan

Name of the Teacher	Ajay Kumar
Designation	Assistant Professor of Maths
Credit	1
Teaching	July,2026 to December,2026
Teaching Hours per week	2

Name of Teacher: Ajay Kumar **Class:** BA/BSc I **Sem**: 1st **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Algebra Lab

Paper Code: C24MAT101P

	Month	TOPIC
1	July-august	Part A 1.Introduction to PYTHON Language. 2. The history of PYTHON Language. 3. To learn basic commands and applications of PYTHON Language. 4.Learn to use basic operators and function in PYTHON Language. 5. To explore the different menus in PYTHON Language.
2	September	6. Learn Keywords/Reserved words in PYTHON Language. 7. To learn the use of predefined functions in PYTHON Language. Part B 1.To learn basic operations on matrices. 2.To find the value of a determinant of matrix of order up to four. 3.To compute inverse of square matrix of order up to four. Test and Assignment submission:1
3	October	Part B 4. To find Eigen values of square matrix of order up to four. 5. To find Eigen vectors of square matrix of order up to four. 6. To solve system of linear equations. 7. To find roots of quadratic, cubic and biquadratic equations. 8. To find multiple roots of algebraic equations. Test and assignment submission -2
4	November-December	Part B 9. To discuss nature of roots of an equation. 10. To learn the concept of divisibility in integers. 11. To find the number of divisors of an integer. 12. To find GCD and LCM of two integers. 13. To find the remainder of an integer when divided by the integer. 14. To find the integers x, y such that d=ax+by , where d is the GCD of a and b.

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4	November-December	Part B 9. To discuss nature of roots of an equation. 10. To learn the concept of divisibility in integers. 11. To find the number of divisors of an integer. 12. To find GCD and LCM of two integers. 13. To find the remainder of an integer when divided by the integer. 14. To find the integers x, y such that d=ax+by , where d is the GCD of a and b.

Government College,Mangali

Lesson Plan

Name of the Teacher	Ajay Kumar
Designation	Assistant Professor of Maths
Credit	3
Teaching	July,2026 to December,2026
Teaching Hours per week	3

Name of Teacher: Ajay Kumar **Class:** BA/BCom I **Sem**: 1st **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Mathematics for Everyday Life

Paper Code: C24MDC119T

	Month	**TOPIC**
		Unit - I Number system, LCM and HCF of numbers, decimal fractions, square and cube roots. Average, Problems on Numbers, problems on Ages, Surds and Indices.
2	September	Unit - II Percentage, Profit and Loss, Ratio and Proportion, Partnership, Chain Rule, problems based on the topics of Calendar and Clocks. Test and Assignment submission:1
3	October	Unit - III Time and Work, Time and Distance, Area, Volume and Surface Area. Test and assignment submission -2
4	November-December	Revision

Government College,Mangali

Lesson Plan

Name of the Teacher	Ajay Kumar
Designation	Assistant Professor of Maths
Credit	3
Teaching	July,2026 to November,2026
Teaching Hours per week	3

Name of Teacher: Ajay Kumar **Class:** BA/BSc II **Sem**: 3rd **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Differential Equations

Paper Code: C24MAT301T

	Month	TOPIC
1	July-august	Unit–I Geometrical meaning of a differential equation. Exact differential equations, integrating factors, first-order higher-degree equations for x,y,p , Lagrange's equations, Clairaut's equations, equations reducible to Clairaut's form, and singular solutions. Test
2	September	UNIT-II Linear differential equations with constant coefficients. Homogeneous linear ordinary differential equations. Equations reducible to homogeneous form. Ordinary simultaneous differential equations. Solution of simultaneous differential equations. Assignment submission:1
3	October	UNIT-III Partial differential equations: formation, order and degree; linear and non-linear partial differential equations of the first order; complete solution, singular solution and general solution; solution of Lagrange's linear equations; Charpit's general method of solution; linear partial differential equations of second and higher orders; linear and non-linear homogeneous and non-homogeneous equations with constant coefficients; partial differential equations with variable coefficients reducible to equations with constant coefficients; complementary functions and particular integrals. Revision of the syllabus and assignment submission -2
4	November	UNIT-IV Classification of linear partial differential equations of second order into hyperbolic, parabolic and elliptic types; reduction of second-order linear partial differential equations to canonical (normal) forms and their solutions; Cauchy's problem for second-order partial differential equations; characteristic equations and characteristic curves of second-order partial differential equations.

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Name of the Teacher	Ajay Kumar
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Credit	1
Teaching	July,2026 to November,2026
Teaching Hours per week	2

Name of Teacher: Ajay Kumar **Class:** BA/BSc II **Sem**: 3rd **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Differential Equations Lab

Paper Code: C24MAT301P

	Month	TOPIC
1	July-august	• Basic commands and symbols to write differential equations. • Commands used to find the derivative and integration of a function. Test
2	September	• Finding the general solution, singular solution and particular solution. • Solutions of first- and second-order differential equations. Assignment submission:1
3	October	• Plotting the family of solutions of differential equations of first, second and third order. • Solution of differential equations using the method of variation of parameters. Revision of the syllabus and assignment submission -2
4	November	• Finding solutions of linear differential equations of second order using built-in functions of Python software. • Finding numerical solution of a first-order ODE using built-in functions of Python. • Finding numerical solution of a first-order PDE using built-in functions of Python.

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Credit	3
Teaching	July,2026 to November,2026
Teaching Hours per week	3

Name of Teacher: Ajay Kumar **Class:** BA/BCom II **Sem**: 3rd **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Application of Mathematical Statistics in Daily Life

Paper Code: C24MDC319T

	Month	**TOPIC**
1	July-august	Unit I Introduction to Statistics: Definition and importance; applications of statistics in real life, such as business, health, sports and education. Types of data: qualitative and quantitative data, discrete and continuous data, primary and secondary data. Organizing data: frequency distribution tables, grouped and ungrouped data. Test
2	September	Unit–II Measures of Central Tendency: Mean (Arithmetic Average)—calculation for ungrouped and grouped data; Median—finding the middle value for ungrouped and grouped data; Mode—identifying the most frequent value. Assignment submission:1
3	October	Unit–III Measures of Dispersion: Range—definition and calculation; Variance and Standard Deviation—concept and basic calculation for ungrouped data; Interquartile Range (IQR)—understanding quartiles and spread of data. Revision of the syllabus and assignment submission -2
4	November	Revision

Government College,Mangali

Lesson Plan

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Credit	3
Teaching	July,2026 to November,2026
Teaching Hours per week	3

Name of Teacher: Ajay Kumar **Class:** BA/BSc IIII **Sem**: 5th **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Mathematical Analysis

Paper Code: C24MAT501T(i)

	Month	**TOPIC**
1	July-august	UNIT-I Boundedness of the set of real numbers, least upper bound, greatest lower bound of a set, neighbourhoods, interior points, isolated points, limit points, open sets, closed sets, real sequences and their convergence, theorem on limits of sequence, subsequences, bounded and monotonic sequences, Cauchy's sequence, Cauchy general principle of convergence, limit superior and limit inferior. Test
2	September	UNIT-II Infinite series, convergence and divergence of infinite series, comparison test for positive terms, Cauchy's general principle of convergence of series, convergence and divergence of geometric series, harmonic series,series, D'Alembert's ratio test, Raabe's test and logarithmic test. Assignment submission:1
3	October	UNIT-III Improper integrals: definition and examples, convergence of improper integrals, comparison tests, Abel's test and Dirichlet's test. Riemann integral: definition and examples, Darboux's theorem, condition of existence of Riemann's integral, integrability of monotonic functions and integrability of continuous functions. Revision of the syllabus and assignment submission -2
4	November	UNIT-IV Metric space: definition and examples, subspace, neighbourhood of a point, limit and interior points, open and closed sets, Cauchy sequence, convergence, completeness, Cantor intersection theorem, Baire category theorem and contraction principle.

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Teaching	July,2026 to November,2026
Teaching Hours per week	2

Name of Teacher: Ajay Kumar **Class:** BA/BSc IIII **Sem**: 5th **Session:** 2026-27

Subject:Mathematics

Nomenclature of Paper: Mathematical Analysis Lab

Paper Code: C24MAT501P(i)

	Month	TOPIC
1	July-august	Part 1 - Basics: Variables, functions and plotting of graphs - Sequences: Limit and convergence of sequence - Cauchy sequence and Cauchy general principle of convergence - Monotonicity and boundedness of sequences - Absolute and conditional convergence of series Test
2	September	Part 2 - D'Alembert's Ratio test for series - Raabe's test for convergence for series - Logarithmic test for series for series - Bolzano-Weierstrass theorem verification and implementation - Convergence/divergence of improper integrals Assignment submission:1
3	October	Part 3* - Comparison test for improper integrals - Illustration of Abel's test

		- Illustration of Dirichlet's test - Visualization of lower sum, upper sum and Riemann Sum - Evaluation of Riemann integral Revision of the syllabus and assignment submission -2
	November	Part 4* - Riemann integral as a limit of sum - Demonstration of various metric functions (distance functions) in metric spaces - Demonstration of interior point, limit point and boundary points in metric spaces - Open and closed sets/balls in metric spaces - Completeness of metric spaces

Ajay Kumar

AP in Maths

HOD Maths