

Academic Planner

A. Teaching Plan

Teacher's Name: **SUMIT KUMAR SHARMA** Department: **MATHEMATICS**

Year: **2017-2018** Semester: **Odd**

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351101	Calculus	Core	The first-derivative test for relative extrema, Concavity and inflection points, Second derivative test for relative extrema, Curve sketching using first and second derivative tests.	20/07/2017	29/07/2017
2	32351101	Calculus	Core	Limits to infinity and infinite limits, Graphs with asymptotes, Vertical tangents and cusps, L'Hôpital's rule.	31/07/2017	05/08/2017
3	32351101	Calculus	Core	Applications of derivatives in business, economics and life sciences. Higher order derivatives and Leibniz rule for higher order derivatives for the product of two functions.	07/08/2017	12/08/2017

4	32351101	Calculus	Core	Parametric representation of curves and tracing of parametric curves (except lines in \mathbb{R}^3), Polar coordinates and the relationship between Cartesian and polar coordinates.	14/08/2017	19/08/2017
5	32351101	Calculus	Core	Tracing of curves in polar coordinates.	21/08/2017	26/08/2017
6	32351101	Calculus	Core	Techniques of sketching conics: parabola, ellipse and hyperbola.	28/08/2017	02/09/2017
7	32351101	Calculus	Core	Reflection properties of conics, Rotation of axes, Second degree equations and their classification into conics using the discriminant.	04/09/2017	09/09/2017
8	32351101	Calculus	Core	Volumes by slicing disks and method of washers	11/09/2017	16/09/2017
9	32351101	Calculus	Core	Volumes by cylindrical shells, Arc length, Arc length of parametric curves.	18/09/2017	29/09/2017
				MID-SEMESTER BREAK	30/09/2017	06/10/2017
10	32351101	Calculus	Core	Area of surface of revolution; Hyperbolic functions.	07/10/2017	14/10/2017
11	32351101	Calculus	Core	Reduction formulae, and to obtain the iterative formulae for the integrals	16/10/2017	21/10/2017
12	32351101	Calculus	Core	Introduction to vector functions and their graphs, Operations with vector functions, Limits and continuity of vector functions, Differentiation and tangent vectors.	23/10/2017	28/10/2017
13	32351101	Calculus	Core	Properties of vector derivatives and integration of vector functions; Modeling ballistics and	30/10/2017	04/11/2017

				planetary motion, Kepler's second law.		
14	32351101	Calculus	Core	Unit tangent, Normal and binormal vectors, Curvature.	06/11/2017	16/11/2017

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351101	Calculus (Practical)	Core	Plotting the graphs of the given functions	20/07/2017	29/07/2017
2	32351101	Calculus (Practical)	Core	Observe and discuss the effect of changes in the real constants a, b and c on the graphs.	31/07/2017	05/08/2017
3	32351101	Calculus (Practical)	Core	Plotting the graphs of polynomial of degree 4 and 5, and their first and second derivatives, and analysis of these graphs	07/08/2017	12/08/2017
4	32351101	Calculus (Practical)	Core	Sketching parametric curves, e.g., trochoid, cycloid, epicycloid and hypocycloid	14/08/2017	19/08/2017
5	32351101	Calculus (Practical)	Core	Tracing of conics in Cartesian coordinates	21/08/2017	26/08/2017
6	32351101	Calculus (Practical)	Core	Continued: Tracing of conics in Cartesian coordinates	28/08/2017	02/09/2017
7	32351101	Calculus (Practical)	Core	Complex numbers and their representations, Operations like addition, multiplication, division, modulus. Graphical representation of polar form.	04/09/2017	09/09/2017

8	32351101	Calculus (Practical)	Core	Find numbers between two real numbers and plotting of finite and infinite subset of \mathbb{R} .	11/09/2017	16/09/2017
9	32351101	Calculus (Practical)	Core	Obtaining surface of revolution of curves.	18/09/2017	29/09/2017
MID-SEMESTER BREAK					30/09/2017	06/10/2017
10	32351101	Calculus (Practical)	Core	Graph of hyperbolic functions.	07/10/2017	14/10/2017
11	32351101	Calculus (Practical)	Core	Computation of limit, Differentiation, Integration and sketching of vector-valued Functions.	16/10/2017	21/10/2017
12	32351101	Calculus (Practical)	Core	Matrix operations: addition, multiplication, inverse, transpose; Determinant, Rank,	23/10/2017	28/10/2017
13	32351101	Calculus (Practical)	Core	Eigenvectors, Eigenvalues, Characteristic equation and verification of the Cayley-Hamilton theorem,	30/10/2017	04/11/2017
14	32351101	Calculus (Practical)	Core	Solving the systems of linear equations.	06/11/2017	16/11/2017

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351502	Group Theory - II	Core	Group actions	20/07/2017	29/07/2017
2	32351502	Group Theory - II	Core	Group actions	31/07/2017	05/08/2017
3	32351502	Group Theory - II	Core	permutation representations	07/08/2017	12/08/2017
4	32351502	Group Theory - II	Core	permutation representations	14/08/2017	19/08/2017
5	32351502	Group Theory - II	Core	Stabilizers	21/08/2017	26/08/2017

6	32351502	Group Theory - II	Core	Stabilizers	28/08/2017	02/09/2017
7	32351502	Group Theory - II	Core	kernels of group actions.	04/09/2017	09/09/2017
8	32351502	Group Theory - II	Core	Groups acting on themselves by left multiplication and consequences.	11/09/2017	16/09/2017
9	32351502	Group Theory - II	Core	Conjugacy in S_n .	18/09/2017	29/09/2017
				MID-SEMESTER BREAK	30/09/2017	06/10/2017
10	32351502	Group Theory - II	Core	Conjugacy classes, Class equation, p-groups.	07/10/2017	14/10/2017
11	32351502	Group Theory - II	Core	Sylow theorems	16/10/2017	21/10/2017
12	32351502	Group Theory - II	Core	Sylow theorems and give their applications.	23/10/2017	28/10/2017
13	32351502	Group Theory - II	Core	Finite simple groups, Non simplicity tests.	30/10/2017	04/11/2017
14	32351502	Group Theory - II	Core	Generalized Cayley's theorem, Index theorem, Embedding theorem	06/11/2017	16/11/2017

Year: 2017-2018 Semester: Even

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351202	Differential Equations	Core	Differential equations and mathematical models, Order and degree of a differential equation,	01/01/2018	06/01/2018
2	32351202	Differential Equations	Core	Exact differential equations and integrating factors of first order differential equations, Reducible second order differential equations.	08/01/2018	13/01/2018
3	32351202	Differential Equations	Core	Application of first order differential equations to acceleration-velocity model, Growth and decay model.	15/01/2018	20/01/2018
4	32351202	Differential Equations	Core	Introduction to compartmental models, Lake pollution model (with case study of Lake Burley Griffin)	22/01/2018	27/01/2018
5	32351202	Differential Equations	Core	Drug assimilation into the blood (case of a single cold pill, case of a course of cold pills, Case study of alcohol in the bloodstream).	29/01/2018	03/02/2018
6	32351202	Differential Equations	Core	Exponential growth of population, Density dependent growth, Limited growth with harvesting.	05/02/2018	10/02/2018
7	32351202	Differential Equations	Core	General solution of homogeneous equation of second order, Principle of superposition for a homogeneous equation;	12/02/2018	17/02/2018
8	32351202	Differential Equations	Core	Wronskian, its properties and applications;	19/02/2018	01/03/2018
MID-SEMESTER BREAK					02/03/2018	07/03/2018

9	32351202	Differential Equations	Core	Linear homogeneous and nonhomogeneous equations of higher order with constant coefficients; Euler's equation.	08/03/2018	17/03/2018
10	32351202	Differential Equations	Core	Method of undetermined coefficients, Method of variation of parameters;	19/03/2018	24/03/2018
11	32351202	Differential Equations	Core	Applications of second order differential equations to mechanical vibrations.	26/03/2018	31/03/2018
12	32351202	Differential Equations	Core	Interacting population models, Epidemic model of influenza and its analysis,	02/04/2018	07/04/2018
13	32351202	Differential Equations	Core	Predatorprey model and its analysis, Equilibrium points,	09/04/2018	14/04/2018
14	32351202	Differential Equations	Core	Interpretation of the phase plane, Battle model and its analysis	16/04/2018	27/04/2018

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351202	Differential Equations (Practical)	Core	Plotting of second and third order respective solution family of differential equation.	01/01/2018	06/01/2018
2	32351202	Differential Equations (Practical)	Core	Growth and decay model (exponential case only).	08/01/2018	13/01/2018
3	32351202	Differential Equations (Practical)	Core	Lake pollution model (with constant/seasonal flow and pollution concentration).	15/01/2018	20/01/2018

4	32351202	Differential Equations (Practical)	Core	Case of single cold pill and a course of cold pills. Limited growth of population (with and without harvesting).	22/01/2018	27/01/2018
5	32351202	Differential Equations (Practical)	Core	Predatory-prey model (basic Volterra model, with density dependence, effect of DDT, two prey one predator). Epidemic model of influenza (basic epidemic model, contagious for life, disease with carriers).	29/01/2018	03/02/2018
6	32351202	Differential Equations (Practical)	Core	Battle model (basic battle model, jungle warfare, long range weapons).	05/02/2018	10/02/2018
7	32351202	Differential Equations (Practical)	Core	Plotting of recursive sequences, and study of the convergence. Find a value $m \in \mathbb{N}$ that will make the following inequality holds for all $n > m$:	12/02/2018	17/02/2018
8	32351202	Differential Equations (Practical)	Core	Verify the Bolzano-Weierstrass theorem through plotting of sequences and hence identify convergent subsequences from the plot.	19/02/2018	01/03/2018
MID-SEMESTER BREAK					02/03/2018	07/03/2018
9	32351202	Differential Equations (Practical)	Core	Study the convergence/divergence of infinite series of real numbers by plotting their sequences of partial sum.	08/03/2018	17/03/2018
10	32351202	Differential Equations (Practical)	Core	Cauchy's root test by plotting nth roots.	19/03/2018	24/03/2018
11	32351202	Differential Equations (Practical)	Core	D'Alembert's ratio test by plotting the ratio of nth and (n+1)th term of the given series of positive terms.	26/03/2018	31/03/2018
12	32351202	Differential Equations (Practical)	Core	Cauchy Sequences	02/04/2018	07/04/2018

13	32351202	Differential Equations (Practical)	Core	Series Tests	09/04/2018	14/04/2018
14	32351202	Differential Equations (Practical)	Core	Series Tests	16/04/2018	27/04/2018

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351403	Ring Theory & Linear Algebra-I	Core	Vector spaces	01/01/2018	06/01/2018
2	32351403	Ring Theory & Linear Algebra-I	Core	Subspaces	08/01/2018	13/01/2018
3	32351403	Ring Theory & Linear Algebra-I	Core	Algebra of subspaces.	15/01/2018	20/01/2018
4	32351403	Ring Theory & Linear Algebra-I	Core	Linear combination of vectors	22/01/2018	27/01/2018
5	32351403	Ring Theory & Linear Algebra-I	Core	Linear span	29/01/2018	03/02/2018
6	32351403	Ring Theory & Linear Algebra-I	Core	Linear independence	05/02/2018	10/02/2018
7	32351403	Ring Theory & Linear Algebra-I	Core	Bases and dimension	12/02/2018	17/02/2018
8	32351403	Ring Theory & Linear Algebra-I	Core	Dimension of subspaces.	19/02/2018	01/03/2018
MID-SEMESTER BREAK					02/03/2018	07/03/2018
9	32351403	Ring Theory & Linear Algebra-I	Core	Linear transformations	08/03/2018	17/03/2018

10	32351403	Ring Theory & Linear Algebra-I	Core	Null space, Range	19/03/2018	24/03/2018
11	32351403	Ring Theory & Linear Algebra-I	Core	Rank and nullity of a linear transformation	26/03/2018	31/03/2018
12	32351403	Ring Theory & Linear Algebra-I	Core	Matrix representation of a linear transformation	02/04/2018	07/04/2018
13	32351403	Ring Theory & Linear Algebra-I	Core	Algebra of linear transformations.	09/04/2018	14/04/2018
14	32351403	Ring Theory & Linear Algebra-I	Core	Isomorphisms, Isomorphism theorems, Invertibility and the change of coordinate matrix	16/04/2018	27/04/2018

Year: 2018-2019 Semester: Odd

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351101	Calculus	Core	The first-derivative test for relative extrema, Concavity and inflection points, Second derivative test for relative extrema, Curve sketching using first and second derivative tests.	20/07/2018	28/07/2018
2	32351101	Calculus	Core	Limits to infinity and infinite limits, Graphs with asymptotes, Vertical tangents and cusps, L'Hôpital's rule.	30/07/2018	04/08/2018
3	32351101	Calculus	Core	Applications of derivatives in business, economics and life sciences. Higher order derivatives and Leibniz rule for higher order derivatives for the product of two functions.	06/08/2018	11/08/2018
4	32351101	Calculus	Core	Parametric representation of curves and tracing of parametric curves (except lines in \mathbb{R}^3), Polar coordinates and the relationship between Cartesian and polar coordinates.	13/08/2018	18/08/2018
5	32351101	Calculus	Core	Tracing of curves in polar coordinates.	20/08/2018	25/08/2018
6	32351101	Calculus	Core	Techniques of sketching conics: parabola, ellipse and hyperbola.	27/08/2018	01/09/2018
7	32351101	Calculus	Core	Reflection properties of conics, Rotation of axes, Second degree equations and their	03/09/2018	08/09/2018

				classification into conics using the discriminant.		
8	32351101	Calculus	Core	Volumes by slicing disks and method of washers	10/09/2018	15/09/2018
9	32351101	Calculus	Core	Volumes by cylindrical shells, Arc length, Arc length of parametric curves.	17/09/2018	22/09/2018
10	32351101	Calculus	Core	Area of surface of revolution; Hyperbolic functions.	24/09/2018	29/09/2018
11	32351101	Calculus	Core	Reduction formulae, and to obtain the iterative formulae for the integrals	01/10/2018	12/10/2018
MID-SEMESTER BREAK					13/10/2018	21/10/2018
12	32351101	Calculus	Core	Introduction to vector functions and their graphs, Operations with vector functions, Limits and continuity of vector functions, Differentiation and tangent vectors.	22/10/2018	27/10/2018
13	32351101	Calculus	Core	Properties of vector derivatives and integration of vector functions; Modeling ballistics and planetary motion, Kepler's second law.	29/10/2018	03/11/2018
14	32351101	Calculus	Core	Unit tangent, Normal and binormal vectors, Curvature.	05/11/2018	16/11/2018

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351101	Calculus (Practical)	Core	Plotting the graphs of the given functions	20/07/2018	28/07/2018

2	32351101	Calculus (Practical)	Core	Observe and discuss the effect of changes in the real constants a, b and c on the graphs.	30/07/2018	04/08/2018
3	32351101	Calculus (Practical)	Core	Plotting the graphs of polynomial of degree 4 and 5, and their first and second derivatives, and analysis of these graphs	06/08/2018	11/08/2018
4	32351101	Calculus (Practical)	Core	Sketching parametric curves, e.g., trochoid, cycloid, epicycloid and hypocycloid	13/08/2018	18/08/2018
5	32351101	Calculus (Practical)	Core	Tracing of conics in Cartesian coordinates	20/08/2018	25/08/2018
6	32351101	Calculus (Practical)	Core	Continued: Tracing of conics in Cartesian coordinates	27/08/2018	01/09/2018
7	32351101	Calculus (Practical)	Core	Complex numbers and their representations, Operations like addition, multiplication, division, modulus. Graphical representation of polar form.	03/09/2018	08/09/2018
8	32351101	Calculus (Practical)	Core	Find numbers between two real numbers and plotting of finite and infinite subset of \mathbb{R} .	10/09/2018	15/09/2018
9	32351101	Calculus (Practical)	Core	Obtaining surface of revolution of curves.	17/09/2018	22/09/2018
10	32351101	Calculus (Practical)	Core	Graph of hyperbolic functions.	24/09/2018	29/09/2018
11	32351101	Calculus (Practical)	Core	Computation of limit, Differentiation, Integration and sketching of vector-valued Functions.	01/10/2018	12/10/2018
MID-SEMESTER BREAK					13/10/2018	21/10/2018
12	32351101	Calculus (Practical)	Core	Matrix operations: addition, multiplication, inverse, transpose; Determinant, Rank,	22/10/2018	27/10/2018

13	32351101	Calculus (Practical)	Core	Eigenvectors, Eigenvalues, Characteristic equation and verification of the Cayley-Hamilton theorem,	29/10/2018	03/11/2018
14	32351101	Calculus (Practical)	Core	Solving the systems of linear equations.	05/11/2018	16/11/2018

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351501	Metric Spaces	Core	Definition of metric space, Illustration using the usual metric on \mathbb{R} , Euclidean and max metric on \mathbb{R}^n , Discrete metric, Sup metric on $B(S)$ and $C[a, b]$, Integral metric on $C[a, b]$.	20/07/2018	28/07/2018
2	32351501	Metric Spaces	Core	Sequences in metric space, Definition of limit of a sequence, Illustration through examples, Cauchy sequences.	30/07/2018	04/08/2018
3	32351501	Metric Spaces	Core	Definition of complete metric spaces, Illustration through examples.	06/08/2018	11/08/2018
4	32351501	Metric Spaces	Core	Open and closed balls, Neighborhood, Open sets, Examples and basic results.	13/08/2018	18/08/2018
5	32351501	Metric Spaces	Core	Interior point, Interior of a set, Limit point, Derived set, Examples and basic results.	20/08/2018	25/08/2018
6	32351501	Metric Spaces	Core	Closed set, Closure of a set, Examples and basic results.	27/08/2018	01/09/2018
7	32351501	Metric Spaces	Core	Bounded set, Diameter of a set, Cantor's theorem.	03/09/2018	08/09/2018
8	32351501	Metric Spaces	Core	Relativisation and subspaces, Dense sets.	10/09/2018	15/09/2018

9	32351501	Metric Spaces	Core	Continuous mappings, Sequential and other characterizations of continuity,	17/09/2018	22/09/2018
10	32351501	Metric Spaces	Core	Uniform continuity,	24/09/2018	29/09/2018
11	32351501	Metric Spaces	Core	Homeomorphism, Contraction mappings, Banach fixed point theorem.	01/10/2018	12/10/2018
MID-SEMESTER BREAK					13/10/2018	21/10/2018
12	32351501	Metric Spaces	Core	Connectedness and compactness,	22/10/2018	27/10/2018
13	32351501	Metric Spaces	Core	Definitions and properties of connected	29/10/2018	03/11/2018
14	32351501	Metric Spaces	Core	Compact spaces.	05/11/2018	16/11/2018

Year: 2018-2019 Semester: Even

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32371208	Probability Theory and Statistics	Core	Sample space, Probability set function and examples, Random variable,	01/01/2019	05/01/2019
2	32371208	Probability Theory and Statistics	Core	Probability mass/density function, Cumulative distribution function and its properties.	07/01/2019	12/01/2019
3	32371208	Probability Theory and Statistics	Core	Discrete and continuous random variables, and Transformations. Expectation of random variables, and some special expectations	14/01/2019	19/01/2019
4	32371208	Probability Theory and Statistics	Core	Mean, Variance, Standard deviation, Moments and moment generating function, Characteristic function.	21/01/2019	26/01/2019
5	32371208	Probability Theory and Statistics	Core	The discrete distributions - Uniform, Bernoulli and binomial.	28/01/2019	02/02/2019
6	32371208	Probability Theory and Statistics	Core	The discrete distributions - negative Binomial, Geometric and Poisson	04/02/2019	09/02/2019
7	32371208	Probability Theory and Statistics	Core	The continuous distributions - Uniform, Gamma, Exponential, Chi-square and Beta.	11/02/2019	16/02/2019
8	32371208	Probability Theory and Statistics	Core	Normal distribution, and normal approximation to the binomial distribution.	18/02/2019	23/02/2019
9	32371208	Probability Theory and Statistics	Core	Random vector: Discrete and continuous, Joint cumulative distribution function and its properties.	25/02/2019	02/03/2019
10	32371208	Probability Theory and Statistics	Core	Joint probability mass/density function, Marginal probability mass function, and expectation of two random variables, Joint moment generating function, Conditional distributions and expectations	05/03/2019	16/03/2019

MID-SEMESTER BREAK					18/03/2019	24/03/2019
11	32371208	Probability Theory and Statistics	Core	Correlation coefficient, Covariance, Calculation of covariance from joint moment generating function, Independent random variables.	25/03/2019	30/03/2019
12	32371208	Probability Theory and Statistics	Core	Linear regression for two variables, and the method of least squares.	01/04/2019	06/04/2019
13	32371208	Probability Theory and Statistics	Core	Bivariate normal distribution; Chebyshev's theorem.	08/04/2019	20/04/2019
14	32371208	Probability Theory and Statistics	Core	Statement and interpretation of the strong law of large numbers, Central limit theorem and the weak law of large numbers.	22/04/2019	27/04/2019

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351401	Partial Differential Equations (Practical)	Core	Solution of Cauchy problem for first order PDE.	01/01/2019	05/01/2019
2	32351401	Partial Differential Equations (Practical)	Core	Continued: Solution of Cauchy problem for first order PDE.	07/01/2019	12/01/2019
3	32351401	Partial Differential Equations (Practical)	Core	Plotting the characteristics for the first order PDE.	14/01/2019	19/01/2019
4	32351401	Partial Differential Equations (Practical)	Core	Plot the integral surfaces of a given first order PDE with initial data	21/01/2019	26/01/2019
5	32351401	Partial Differential Equations (Practical)	Core	Solution of wave equation for the following associated conditions.	28/01/2019	02/02/2019
6	32351401	Partial Differential Equations (Practical)	Core	Continued: Solution of wave equation for the following associated conditions.	04/02/2019	09/02/2019

7	32351401	Partial Differential Equations (Practical)	Core	Solution of one-Dimensional heat equation, for a homogeneous rod of length l .	11/02/2019	16/02/2019
8	32351401	Partial Differential Equations (Practical)	Core	Revision of the above practical.	18/02/2019	23/02/2019
9	32351401	Partial Differential Equations (Practical)	Core	Draw the given sequence of functions on the given interval and discuss the pointwise Convergence.	25/02/2019	02/03/2019
10	32351401	Partial Differential Equations (Practical)	Core	Solving systems of ordinary differential equations	05/03/2019	16/03/2019
				MID-SEMESTER BREAK	18/03/2019	24/03/2019
11	32351401	Partial Differential Equations (Practical)	Core	Discuss the uniform convergence of sequence of functions in the given interval.	25/03/2019	30/03/2019
12	32351401	Partial Differential Equations (Practical)	Core	Continued: Discuss the uniform convergence of sequence of functions in the given interval.	01/04/2019	06/04/2019
13	32351401	Partial Differential Equations (Practical)	Core	Preparation for the Practical Examinations	08/04/2019	20/04/2019
14	32351401	Partial Differential Equations (Practical)	Core	Practical External Examination	22/04/2019	27/04/2019

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351202	Differential Equations (Practical)	Core	Plotting of second and third order respective solution family of differential equation.	01/01/2019	05/01/2019

2	32351202	Differential Equations (Practical)	Core	Growth and decay model (exponential case only).	07/01/2019	12/01/2019
3	32351202	Differential Equations (Practical)	Core	Lake pollution model (with constant/seasonal flow and pollution concentration).	14/01/2019	19/01/2019
4	32351202	Differential Equations (Practical)	Core	Case of single cold pill and a course of cold pills. Limited growth of population (with and without harvesting).	21/01/2019	26/01/2019
5	32351202	Differential Equations (Practical)	Core	Predatory-prey model (basic Volterra model, with density dependence, effect of DDT, two prey one predator). Epidemic model of influenza (basic epidemic model, contagious for life, disease with carriers).	28/01/2019	02/02/2019
6	32351202	Differential Equations (Practical)	Core	Battle model (basic battle model, jungle warfare, long range weapons).	04/02/2019	09/02/2019
7	32351202	Differential Equations (Practical)	Core	Plotting of recursive sequences, and study of the convergence. Find a value $m \in \mathbb{N}$ that will make the following inequality holds for all $n > m$:	11/02/2019	16/02/2019
8	32351202	Differential Equations (Practical)	Core	Verify the Bolzano-Weierstrass theorem through plotting of sequences and hence identify convergent subsequences from the plot.	18/02/2019	23/02/2019
9	32351202	Differential Equations (Practical)	Core	Study the convergence/divergence of infinite series of real numbers by plotting their sequences of partial sum.	25/02/2019	02/03/2019
10	32351202	Differential Equations (Practical)	Core	Cauchy's root test by plotting nth roots.	05/03/2019	16/03/2019
MID-SEMESTER BREAK					18/03/2019	24/03/2019

11	32351202	Differential Equations (Practical)	Core	D'Alembert's ratio test by plotting the ratio of n th and $(n+1)$ th term of the given series of positive terms.	25/03/2019	30/03/2019
12	32351202	Differential Equations (Practical)	Core	Cauchy Sequences	01/04/2019	06/04/2019
13	32351202	Differential Equations (Practical)	Core	Series Tests	08/04/2019	20/04/2019
14	32351202	Differential Equations (Practical)	Core	Series Tests	22/04/2019	27/04/2019

Sl. No.	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1		Elements of Analysis	GE	Finite and infinite sets, Examples of countable and uncountable sets; Absolute value of the real line	01/01/2019	05/01/2019
2		Elements of Analysis	GE	bounded sets, suprema and infima; Statement of order completeness property of \mathbb{R} , Archimedean property of \mathbb{R} .	07/01/2019	12/01/2019
3		Elements of Analysis	GE	Real sequences, Convergence, Sum and product of convergent sequences.	14/01/2019	19/01/2019
4		Elements of Analysis	GE	Order preservation and squeeze theorem.	21/01/2019	26/01/2019
5		Elements of Analysis	GE	Monotone sequences and their convergence, Proof of convergence of some simple sequences	28/01/2019	02/02/2019

6		Elements of Analysis	GE	Subsequences and the Bolzano–Weierstrass theorem (statement and examples), Limit superior and limit inferior of a bounded sequence (definition and examples)	04/02/2019	09/02/2019
7		Elements of Analysis	GE	Statement and illustrations of Cauchy convergence criterion for sequences.	11/02/2019	16/02/2019
8		Elements of Analysis	GE	Definition and a necessary condition for convergence of an infinite series, Geometric series	18/02/2019	23/02/2019
9		Elements of Analysis	GE	Cauchy convergence criterion for series, positive term series, State the integral test and prove the convergence of p -series, Comparison test, Limit comparison test and examples.	25/02/2019	02/03/2019
10		Elements of Analysis	GE	D’Alembert’s ratio test, Cauchy’s root test.	05/03/2019	16/03/2019
MID-SEMESTER BREAK					18/03/2019	24/03/2019
11		Elements of Analysis	GE	Alternating series, Leibnitz test; Absolute and conditional convergence.	25/03/2019	30/03/2019
12		Elements of Analysis	GE	Definition of power series, Radius and interval of convergence, Cauchy–Hadamard theorem.	01/04/2019	06/04/2019
13		Elements of Analysis	GE	Statement and illustration of term-by-term differentiation, Integration of power series and Abel’s theorem.	08/04/2019	20/04/2019
14		Elements of Analysis	GE	Power series expansions	22/04/2019	27/04/2019

Year: 2019-2020 Semester: Odd

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351101	Calculus	Core	The first-derivative test for relative extrema, Concavity and inflection points, Second derivative test for relative extrema, Curve sketching using first and second derivative tests.	20/07/2019	27/07/2019
2	32351101	Calculus	Core	Limits to infinity and infinite limits, Graphs with asymptotes, Vertical tangents and cusps, L'Hôpital's rule.	29/07/2019	03/08/2019
3	32351101	Calculus	Core	Applications of derivatives in business, economics and life sciences. Higher order derivatives and Leibniz rule for higher order derivatives for the product of two functions.	05/08/2019	10/08/2019
4	32351101	Calculus	Core	Parametric representation of curves and tracing of parametric curves (except lines in \mathbb{R}^3), Polar coordinates and the relationship between Cartesian and polar coordinates.	13/08/2019	17/08/2019
5	32351101	Calculus	Core	Tracing of curves in polar coordinates.	19/08/2019	23/08/2019
6	32351101	Calculus	Core	Techniques of sketching conics: parabola, ellipse and hyperbola.	26/08/2019	31/08/2019

7	32351101	Calculus	Core	Reflection properties of conics, Rotation of axes, Second degree equations and their classification into conics using the discriminant.	02/09/2019	07/09/2019
8	32351101	Calculus	Core	Volumes by slicing disks and method of washers	09/09/2019	14/09/2019
9	32351101	Calculus	Core	Volumes by cylindrical shells, Arc length, Arc length of parametric curves.	16/09/2019	21/09/2019
10	32351101	Calculus	Core	Area of surface of revolution; Hyperbolic functions.	23/09/2019	05/10/2019
MID-SEMESTER BREAK					07/10/2019	13/10/2019
11	32351101	Calculus	Core	Reduction formulae, and to obtain the iterative formulae for the integrals	14/10/2019	19/10/2019
12	32351101	Calculus	Core	Introduction to vector functions and their graphs, Operations with vector functions, Limits and continuity of vector functions, Differentiation and tangent vectors.	21/10/2019	02/11/2019
13	32351101	Calculus	Core	Properties of vector derivatives and integration of vector functions; Modeling ballistics and planetary motion, Kepler's second law.	04/11/2019	09/11/2019
14	32351101	Calculus	Core	Unit tangent, Normal and binormal vectors, Curvature.	11/11/2019	16/11/2019

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351101	Calculus (Practical)	Core	Plotting the graphs of the given functions	20/07/2019	27/07/2019
2	32351101	Calculus (Practical)	Core	Observe and discuss the effect of changes in the real constants a , b and c on the graphs.	29/07/2019	03/08/2019
3	32351101	Calculus (Practical)	Core	Plotting the graphs of polynomial of degree 4 and 5, and their first and second derivatives, and analysis of these graphs	05/08/2019	10/08/2019
4	32351101	Calculus (Practical)	Core	Sketching parametric curves, e.g., trochoid, cycloid, epicycloid and hypocycloid	13/08/2019	17/08/2019
5	32351101	Calculus (Practical)	Core	Tracing of conics in Cartesian coordinates	19/08/2019	23/08/2019
6	32351101	Calculus (Practical)	Core	Continued: Tracing of conics in Cartesian coordinates	26/08/2019	31/08/2019
7	32351101	Calculus (Practical)	Core	Complex numbers and their representations, Operations like addition, multiplication, division, modulus. Graphical representation of polar form.	02/09/2019	07/09/2019
8	32351101	Calculus (Practical)	Core	Find numbers between two real numbers and plotting of finite and infinite subset of \mathbb{R} .	09/09/2019	14/09/2019
9	32351101	Calculus (Practical)	Core	Obtaining surface of revolution of curves.	16/09/2019	21/09/2019
10	32351101	Calculus (Practical)	Core	Graph of hyperbolic functions.	23/09/2019	05/10/2019
MID-SEMESTER BREAK					07/10/2019	13/10/2019

11	32351101	Calculus (Practical)	Core	Computation of limit, Differentiation, Integration and sketching of vector-valued Functions.	14/10/2019	19/10/2019
12	32351101	Calculus (Practical)	Core	Matrix operations: addition, multiplication, inverse, transpose; Determinant, Rank,	21/10/2019	02/11/2019
13	32351101	Calculus (Practical)	Core	Eigenvectors, Eigenvalues, Characteristic equation and verification of the Cayley-Hamilton theorem,	04/11/2019	09/11/2019
14	32351101	Calculus (Practical)	Core	Solving the systems of linear equations.	11/11/2019	16/11/2019

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351502	Group Theory - II	Core	Group actions	20/07/2019	27/07/2019
2	32351502	Group Theory - II	Core	Group actions	29/07/2019	03/08/2019
3	32351502	Group Theory - II	Core	permutation representations	05/08/2019	10/08/2019
4	32351502	Group Theory - II	Core	permutation representations	13/08/2019	17/08/2019
5	32351502	Group Theory - II	Core	Stabilizers	19/08/2019	23/08/2019
6	32351502	Group Theory - II	Core	Stabilizers	26/08/2019	31/08/2019
7	32351502	Group Theory - II	Core	kernels of group actions.	02/09/2019	07/09/2019
8	32351502	Group Theory - II	Core	Groups acting on themselves by left multiplication and consequences.	09/09/2019	14/09/2019
9	32351502	Group Theory - II	Core	Conjugacy in S_n .	16/09/2019	21/09/2019
10	32351502	Group Theory - II	Core	Conjugacy classes, Class equation, p-groups.	23/09/2019	05/10/2019

MID-SEMESTER BREAK					07/10/2019	13/10/2019
11	32351502	Group Theory - II	Core	Sylow theorems	14/10/2019	19/10/2019
12	32351502	Group Theory - II	Core	Sylow theorems and give their applications.	21/10/2019	02/11/2019
13	32351502	Group Theory - II	Core	Finite simple groups, Non simplicity tests.	04/11/2019	09/11/2019
14	32351502	Group Theory - II	Core	Generalized Cayley's theorem, Index theorem, Embedding theorem	11/11/2019	16/11/2019

Year: 2019-2020 Semester: Even

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32371208	Probability Theory and Statistics	Core	Sample space, Probability set function and examples, Random variable,	01/01/2020	11/01/2020
2	32371208	Probability Theory and Statistics	Core	Probability mass/density function, Cumulative distribution function and its properties.	13/01/2020	18/01/2020
3	32371208	Probability Theory and Statistics	Core	Discrete and continuous random variables, and Transformations. Expectation of random variables, and some special expectations	20/01/2020	25/01/2020
4	32371208	Probability Theory and Statistics	Core	Mean, Variance, Standard deviation, Moments and moment generating function, Characteristic function.	27/01/2020	01/02/2020
5	32371208	Probability Theory and Statistics	Core	The discrete distributions - Uniform, Bernoulli and binomial.	03/02/2020	08/02/2020
6	32371208	Probability Theory and Statistics	Core	The discrete distributions - negative Binomial, Geometric and Poisson	10/02/2020	15/02/2020
7	32371208	Probability Theory and Statistics	Core	The continuous distributions - Uniform, Gamma, Exponential, Chi-square and Beta.	17/02/2020	22/02/2020
8	32371208	Probability Theory and Statistics	Core	Normal distribution, and normal approximation to the binomial distribution.	24/02/2020	29/02/2020
9	32371208	Probability Theory and Statistics	Core	Random vector: Discrete and continuous, Joint cumulative distribution function and its properties.	02/03/2020	07/03/2020
MID-SEMESTER BREAK					09/03/2020	15/03/2020
10	32371208	Probability Theory and Statistics	Core	Joint probability mass/density function, Marginal probability mass function, and	16/03/2020	21/03/2020

				expectation of two random variables, Joint moment generating function, Conditional distributions and expectations		
11	32371208	Probability Theory and Statistics	Core	Correlation coefficient, Covariance.	23/03/2020	28/03/2020
12	32371208	Probability Theory and Statistics	Core	Calculation of covariance from joint moment generating function.	30/03/2020	04/04/2020
13	32371208	Probability Theory and Statistics	Core	Independent random variables.	06/04/2020	11/04/2020
14	32371208	Probability Theory and Statistics	Core	Linear regression for two variables, and the method of least squares.	13/04/2020	18/04/2020
15	32371208	Probability Theory and Statistics	Core	Bivariate normal distribution; Chebyshev's theorem.	20/04/2020	25/04/2020
16	32371208	Probability Theory and Statistics	Core	Statement and interpretation of the strong law of large numbers,.	27/04/2020	02/05/2020
17	32371208	Probability Theory and Statistics	Core	Central limit theorem and the weak law of large numbers	04/04/2020	15/05/2020

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351401	Partial Differential Equations	Core	Introduction, Classification, Construction of first order partial differential equations (PDE).	01/01/2020	11/01/2020
2	32351401	Partial Differential Equations	Core	Method of characteristics and general solution of first order PDE.	13/01/2020	18/01/2020
3	32351401	Partial Differential Equations	Core	Canonical form of first order PDE	20/01/2020	25/01/2020
4	32351401	Partial Differential Equations	Core	Method of separation of variables for first order PDE.	27/01/2020	01/02/2020

5	32351401	Partial Differential Equations	Core	Method of separation of variables for first order PDE.	03/02/2020	08/02/2020
6	32351401	Partial Differential Equations	Core	The vibrating string	10/02/2020	15/02/2020
7	32351401	Partial Differential Equations	Core	The vibrating string	17/02/2020	22/02/2020
8	32351401	Partial Differential Equations	Core	Vibrating membrane.	24/02/2020	29/02/2020
9	32351401	Partial Differential Equations	Core	Vibrating membrane.	02/03/2020	07/03/2020
				MID-SEMESTER BREAK	09/03/2020	15/03/2020
10	32351401	Partial Differential Equations	Core	Gravitational potential	16/03/2020	21/03/2020
11	32351401	Partial Differential Equations	Core	Gravitational potential	23/03/2020	28/03/2020
12	32351401	Partial Differential Equations	Core	Conservation laws	30/03/2020	04/04/2020
13	32351401	Partial Differential Equations	Core	Conservation laws	06/04/2020	11/04/2020
14	32351401	Partial Differential Equations	Core	Reduction to canonical forms	13/04/2020	18/04/2020
15	32351401	Partial Differential Equations	Core	Reduction to canonical forms	20/04/2020	25/04/2020
16	32351401	Partial Differential Equations	Core	Reduction to canonical forms	27/04/2020	02/05/2020
17	32351401	Partial Differential Equations	Core	Reduction to canonical forms	04/05/2020	15/05/2020

Sl. No	UPC	Paper Name	Core/AECC/GE/SEC	Topic/Unit	Start Date	End Date
1	32351401	Partial Differential Equations (Practical)	Core	Solution of Cauchy problem for first order PDE.	01/01/2020	11/01/2020
2	32351401	Partial Differential Equations (Practical)	Core	Continued: Solution of Cauchy problem for first order PDE.	13/01/2020	18/01/2020
3	32351401	Partial Differential Equations (Practical)	Core	Plotting the characteristics for the first order PDE.	20/01/2020	25/01/2020
4	32351401	Partial Differential Equations (Practical)	Core	Plot the integral surfaces of a given first order PDE with initial data	27/01/2020	01/02/2020
5	32351401	Partial Differential Equations (Practical)	Core	Solution of wave equation for the following associated conditions.	03/02/2020	08/02/2020
6	32351401	Partial Differential Equations (Practical)	Core	Continued: Solution of wave equation for the following associated conditions.	10/02/2020	15/02/2020
7	32351401	Partial Differential Equations (Practical)	Core	Solution of one-Dimensional heat equation, for a homogeneous rod of length l .	17/02/2020	22/02/2020
8	32351401	Partial Differential Equations (Practical)	Core	Revision of the above practical.	24/02/2020	29/02/2020
9	32351401	Partial Differential Equations (Practical)	Core	Draw the given sequence of functions on the given interval and discuss the pointwise Convergence.	02/03/2020	07/03/2020
				MID-SEMESTER BREAK	09/03/2020	15/03/2020
10	32351401	Partial Differential Equations (Practical)	Core	Solving systems of ordinary differential equations	16/03/2020	21/03/2020
11	32351401	Partial Differential Equations (Practical)	Core	Continued: Solving systems of ordinary differential equations	23/03/2020	28/03/2020
12	32351401	Partial Differential Equations (Practical)	Core	Discuss the uniform convergence of sequence of functions in the given interval.	30/03/2020	04/04/2020

13	32351401	Partial Differential Equations (Practical)	Core	Continued: Discuss the uniform convergence of sequence of functions in the given interval.	06/04/2020	11/04/2020
14	32351401	Partial Differential Equations (Practical)	Core	Revision	13/04/2020	18/04/2020
15	32351401	Partial Differential Equations (Practical)	Core	Revision	20/04/2020	25/04/2020
16	32351401	Partial Differential Equations (Practical)	Core	Revision	27/04/2020	02/05/2020
17	32351401	Partial Differential Equations (Practical)	Core	The Conduct of Online Practical Examination.	04/05/2020	15/05/2020

B. Outstation Field visits for students

Project Name / Paper Name			
Destination		Travel Mode	
Departure Month		Return	
Faculty-in-Charge		Number of Students going	

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C. Internal Assessment: House Exam (Test/Presentation etc.) & Assignment*

Course Code	Course Name	Unique Paper Code	Topic Name	Day and Date	Date/s of Exhibiting the Assessment Sheet to students, Discussing the marks, Returning/Retaining

***Marks of the Internal Assessment to be submitted to the College 15 days before the last working day of every semester**

For Departments

A. Department activities for students – Election/Freshers/Welcome/Farewell/Department Seminars/Society functions

Event	Date	Timing	Venue	Event In-charge / Supervisor
Department Election				
Fresher’s Welcome				
Farewell				
Department Society functions				
Department Seminars				
Any Other ()				

B. FDP/Seminar/Workshops/Lectures to be attended and/or to be conducted

Event Topic					
Type / Nature (FDP/Webinar/Workshop etc.)					
Organizing In-charge					
Details regarding invited Resource Person					
Nature of Participation (e.g. Invited Speaker, Participant etc.)					
Date/s		Timing/s		Mode	