

Academic Planner

A. Teaching Plan

Teacher's Name: SUMIT KUMAR SHARMA Department: MATHEMATICS

Year: 2020-2021 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.	01/04/2021	09/04/2021
2	32351101	Calculus	Core	Limits to infinity and infinite limits, Graphs with asymptotes, Vertical tangents and cusps, L'Hôpital's rule.	10/04/2021	17/04/2021
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.	18/04/2021	24/04/2021

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.	25/04/2021	03/05/2021
5	32351101	Calculus	Core	Tracing of curves in polar coordinates.	17/05/2021	22/05/2021
6	32351101	Calculus	Core	Techniques of sketching conics: parabola, ellipse and hyperbola.	23/05/2021	29/05/2021
7	32351101	Calculus	Core	Reflection properties of conics, Rotation of axes, Second degree equations and their classification into conics using the discriminant.	30/05/2021	05/06/2021
8	32351101	Calculus	Core	Volumes by slicing disks and method of washers	06/06/2021	12/06/2021
9	32351101	Calculus	Core	Volumes by cylindrical shells, Arc length, Arc length of parametric curves.	13/06/2021	19/06/2021
10	32351101	Calculus	Core	Area of surface of revolution; Hyperbolic functions.	20/06/2021	26/06/2021
11	32351101	Calculus	Core	Reduction formulae, and to obtain the iterative formulae for the integrals	27/06/2021	10/07/2021
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.	11/07/2021	17/07/2021
13	32351101	Calculus	Core	Properties of vector derivatives and integration of vector functions; Modeling ballistics and	18/07/2021	24/07/2021

				planetary motion, Kepler's second law.		
14	32351101	Calculus	Core	Unit tangent, Normal and binormal vectors, Curvature.	25/07/2021	02/08/2021

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	01/04/2021	09/04/2021
2	32351101	Calculus (Practical)	Core	Observe and discuss the effect of changes in the real constants a, b and c on the graphs.	10/04/2021	17/04/2021
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	18/04/2021	24/04/2021
4	32351101	Calculus (Practical)	Core	Sketching parametric curves, e.g., trochoid, cycloid, epicycloid and hypocycloid	25/04/2021	03/05/2021
5	32351101	Calculus (Practical)	Core	Tracing of conics in Cartesian coordinates	17/05/2021	22/05/2021
6	32351101	Calculus (Practical)	Core	Continued: Tracing of conics in Cartesian coordinates	23/05/2021	29/05/2021
7	32351101	Calculus (Practical)	Core	Complex numbers and their representations, Operations like addition, multiplication, division, modulus. Graphical representation of polar form.	30/05/2021	05/06/2021

8	32351101	Calculus (Practical)	Core	Find numbers between two real numbers and plotting of finite and infinite subset of \mathbb{R} .	06/06/2021	12/06/2021
9	32351101	Calculus (Practical)	Core	Obtaining surface of revolution of curves.	13/06/2021	19/06/2021
10	32351101	Calculus (Practical)	Core	Graph of hyperbolic functions.	20/06/2021	26/06/2021
11	32351101	Calculus (Practical)	Core	Computation of limit, Differentiation, Integration and sketching of vector-valued Functions.	27/06/2021	10/07/2021
12	32351101	Calculus (Practical)	Core	Matrix operations: addition, multiplication, inverse, transpose; Determinant, Rank,	11/07/2021	17/07/2021
13	32351101	Calculus (Practical)	Core	Eigenvectors, Eigenvalues, Characteristic equation and verification of the Cayley-Hamilton theorem,	18/07/2021	24/07/2021
14	32351101	Calculus (Practical)	Core	Solving the systems of linear equations.	25/07/2021	02/08/2021

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
2020 – 2021 (Odd Sem.)					
563	B.Sc. (Hons.) Mathematics	32371208		20/04/2021	26/04/2021
563	B.Sc. (Hons.) Mathematics	32351101	Calculus	20/07/2021	23/07/2021
563	B.Sc. (Hons.) Mathematics	32351101	Calculus (Practical)	26/07/2021	28/07/2021

Academic Planner

A. Teaching Plan

Teacher's Name: **SUMIT KUMAR SHARMA**Department: **MATHEMATICS**Year: **2020-2021**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,	02/01/2021	09/01/2021
2	32371208	Probability Theory and Statistics	Core	Probability mass/density function, Cumulative distribution function and its properties.	11/01/2021	15/01/2021
3	32371208	Probability Theory and Statistics	Core	Discrete and continuous random variables, and Transformations. Expectation of random variables, and some special expectations	16/01/2021	25/01/2021
4	32371208	Probability Theory and Statistics	Core	Mean, Variance, Standard deviation, Moments and moment generating function, Characteristic function.	26/02/2021	05/02/2021
5	32371208	Probability Theory and Statistics	Core	The discrete distributions - Uniform, Bernoulli and binomial.	06/02/2021	10/02/2021
6	32371208	Probability Theory and Statistics	Core	The discrete distributions - negative Binomial, Geometric and Poisson	11/02/2021	22/02/2021
7	32371208	Probability Theory and Statistics	Core	The continuous distributions - Uniform, Gamma, Exponential, Chi-square and Beta.	23/02/2021	27/02/2021
8	32371208	Probability Theory and Statistics	Core	Normal distribution, and normal approximation to the binomial distribution.	28/02/2021	03/03/2021
9	32371208	Probability Theory and Statistics	Core	Random vector: Discrete and continuous, Joint cumulative distribution function and its properties.	04/03/2021	10/03/2021
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	11/03/2021	23/03/2021

Academic planner**Dr. Sumit Kumar Sharma**

11	32371208	Probability Theory and Statistics	Core	Correlation coefficient, Covariance, Calculation of covariance from joint moment generating function, Independent random variables.	31/03/2021	7/04/2021
12	32371208	Probability Theory and Statistics	Core	Linear regression for two variables, and the method of least squares.	8/04/2021	14/04/2021
13	32371208	Probability Theory and Statistics	Core	Bivariate normal distribution; Chebyshev's theorem.	15/04/2021	21/04/2021
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.	22/04/2021	29/04/2021

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.	02/01/2021	14/01/2021
2	32351401	Partial Differential Equations (Practical)	Core	Continued: Solution of Cauchy problem for first order PDE.	15/01/2021	31/01/2021
3	32351401	Partial Differential Equations (Practical)	Core	Plotting the characteristics for the first order PDE.	01/02/2021	14/02/2021
4	32351401	Partial Differential Equations (Practical)	Core	Plot the integral surfaces of a given first order PDE with initial data	15/02/2021	28/02/2021
5	32351401	Partial Differential Equations (Practical)	Core	Solution of wave equation for the following associated conditions.	01/03/2021	14/03/2021
6	32351401	Partial Differential Equations (Practical)	Core	Continued: Solution of wave equation for the following associated conditions.	15/03/2021	24/03/2021
7	32351401	Partial Differential Equations (Practical)	Core	Solution of one-Dimensional heat equation, for a homogeneous rod of length	01/04/2021	15/04/2021
8	32351401	Partial Differential Equations (Practical)	Core	Draw the given sequence of functions on the given interval and discuss the pointwise	15/04/2021	28/04/2021

--	--	--	--	--	--	--

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).	02/01/2021	08/01/2021
2	32351401	Partial Differential Equations	Core	Method of characteristics and general solution of first order PDE.	09/01/2021	15/01/2021
3	32351401	Partial Differential Equations	Core	Canonical form of first order PDE	16/01/2021	20/01/2021

4	32351401	Partial Differential Equations	core	method of separation of variables for first order PDE	21/01/2021	27/01/2021
5	32351401	Partial Differential Equations	Core	Mathematical modeling of vibrating string, vibrating membrane, conduction of heat in solids, gravitational potential, conservation laws and Burger's equations	28/01/2021	10/02/2021
6	32351401	Partial Differential equations	Core	classification of second order PDE, reduction to canonical forms, equations with constant coefficients, general solution	11/02/2021	24/02/2021
7	32351401	Partial Differential equations	Core	Cauchy problem for second order PDE, homogeneous wave equation, initial boundary value problems, non-homogeneous boundary conditions.	25/02/2021	08/03/2021
8	32351401	Partial Differential equations	Core	, finite strings with fixed ends, non-homogeneous wave equation, Riemann problem, Goursat problem, spherical and cylindrical wave equation.	09/03/2021	24/03/2021
9	32351401	Partial Differential equations	Core	Method of separation of variables for second order PDE, vibrating string	01/04/2021	15/04/2021

				problem, existence and uniqueness core of solution of vibrating string problem, heat conduction		
10	32351401	Partial Differential equations	Core	problem, existence and uniqueness of solution of heat conduction problem, Laplace and beam equation, non-homogeneous problem.	16/04/2021	29/04/2021

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
2020 – 2021 (Odd Sem.)					
563	B.Sc. (Hons.) Mathematics (DSE)	32371208	Probability theory and statistics	20/04/2021	26/04/2021
563	B.Sc. (Hons.) Mathematics	32351401	Partial Differential equations	26/07/2021	29/07/2021
563	B.Sc. (Hons.) Mathematics (VI sem)	32371208	Partial Differential equations Practical	22/04/2021	27/04/2021

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

