Academic Planner

A. Teaching Plan

Teacher's Name: S.K. Kaushik   **Department:**   MATHEMATICS

Year: 2020-2021 (Odd Semester)   **Course:** B.Sc. (Hons.) Mathematics

Sl. No.	UPC	Paper Name	Core/ AECC/ GE/ SEC	Topic/Unit	Start Date	End Date
1	32351301	Theory of Real function	Core	Definition of the limit, Sequential criterion for limits, Criterion for non-existence of limit.	10/08/2020	14/08/2020
2	32351301	Theory of Real function	Core	Algebra of limits of functions with illustrations and examples, Squeeze theorem.	16/08/2020	21/08/2020
3	32351301	Theory of Real function	Core	Definition and illustration of the concepts of one-sided limits, Infinite limits and limits at infinity.	23/08/2020	28/08/2020
4	32351301	Theory of Real function	Core	Definitions of continuity at a point and on a set, Sequential criterion for continuity,	30/08/2020	04/09/2020

				Algebra of continuous functions, Composition of continuous functions.		
5	32351301	**Theory of Real function**	Core	**Various properties of continuous functions defined on an interval, viz., Boundedness theorem, Maximum-minimum theorem, Statement of the location of roots theorem, Intermediate value theorem and the preservation of intervals theorem.**	06/09/2020	18/09/2020
6	32351301	**Theory of Real function**	Core	**Definition of uniform continuity, Illustration of non-uniform continuity criteria, Uniform continuity theorem.**	20/09/2020	25/09/2020
7	32351301	**Theory of Real function**	Core	**Differentiability of a function, Algebra of differentiable functions, Carathéodory's theorem and chain rule.**	27/09/2020	09/10/2020
8	32351301	**Theory of Real function**	Core	**Relative extrema, Interior extremum theorem, Mean value theorem and its applications, Intermediate value property of derivatives - Darboux's theorem.**	11/10/2020	23/10/2020
9	32351301	**Theory of Real function**	Core	**Capital market line, Sharpe index. Capital Asset Pricing Model (CAPM), betas of stocks and portfolios.**	25/10/2020	19/11/2020

Sl. No.	UPC	Paper Name	Core/ AECC/ GE/ SEC	Topic/Unit	Start Date	End Date
10	32351301	**Theory of Real function**	Core	**Taylor polynomial, Taylor's theorem and its applications, Taylor's series expansions of ex, $\sin x$ and $\cos x$.**	20/11/2020	27/11/2020

Sl. No.	UPC	Paper Name	Core/ AECC/ GE/ SEC	Topic/Unit	Start Date	End Date
1	32357505	**Discrete Mathematics**	Core	**Definition, examples and basic properties of ordered sets, maps between ordered sets,**	10/08/2020	14/08/2020
2	32357505	**Discrete Mathematics**	Core	**duality principle, lattices as ordered sets, lattices as algebraic structures, sublattices, products and homomorphisms.**	16/08/2020	28/08/2020
3	32357505	**Discrete Mathematics**	Core	**Definition, examples and properties of modular and distributive lattices,**	30/08/2020	04/09/2020
4	32357505	**Discrete Mathematics**	Core	**Boolean algebras, Boolean polynomials, minimal forms of Boolean polynomials,**	06/09/2020	18/09/2020
5	32357505	**Discrete Mathematics**	Core	**Quinn-McCluskey method, Karnaugh diagrams, switching**	20/09/2020	09/10/2020

				circuits and applications of switching circuits.		
6	32357505	**Discrete Mathematics**	Core	**Definition, examples and basic properties of graphs, pseudographs, complete graphs, bipartite graphs, isomorphism of graphs, paths and circuits,**	11/10/2020	23/10/2020
7	32357505	**Discrete Mathematics**	Core	**Eulerian circuits, Hamiltonian cycles, the adjacency matrix, weighted graph,**	25/10/2020	13/11/2020
8	32357505	**Discrete Mathematics**	Core	**travelling salesman's problem, shortest path, Dijkstra's algorithm, Floyd-Warshall algorithm**	15/11/2020	27/11/2020

A. Outstation Field visits for students

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

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B. 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 (V sem)		Discrete Mathematics	Friday 27/11/2020	30/11/2020
582	B.Sc. (Hons) Mathematics (III sem)		Theory of Real Functions	Friday 06/11/2020	14/11/2020

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

C. Organization of Department/College Society Meetings by Staff Advisor/Convener

Department/Society	Meeting Date	Purpose
2020 - 2021		

D. College Functions

College Function	Function Date	Role to be played
NA	NA	NA

Academic Planner

B. Teaching Plan

Teacher's Name: S.K. Kaushik   **Department:** MATHEMATICS

Year: 2020-2021 (Even Semester)   **Course:** B.Sc. (Hons.) Mathematics

Sl. No.	UPC	Paper Name	Core/ AECC/ GE/ SEC	Topic/Unit	Start Date	End Date
1	32351201	Real Analysis	Core	Algebraic and order properties of $\mathbb{R}$. Absolute value of a real number; Bounded above and bounded below sets.	01/04/2021	10/04/2021
2	32351201	Real Analysis	Core	Supremum and infimum of a nonempty subset of $\mathbb{R}$. Statement of order completeness property of $\mathbb{R}$.	12/04/2021	17/04/2021
3	32351201	Real Analysis		Archimedean property of $\mathbb{R}$. Density of rational numbers in $\mathbb{R}$, Definition and types of intervals, Nested intervals property	19/04/2021	24/04/2021
4	32351201	Real Analysis		Neighbourhood of a point in $\mathbb{R}$, Open and closed sets in $\mathbb{R}$.	26/04/2021	03/05/2021

				SUSPENSION OF ONLINE TEACHING DUE TO COVID-19	04/05/2021	16/05/2021
5	32351201	Real Analysis	Core	Real sequences, convergence, sum and product of convergent sequences, Order preservation and squeeze theorem.	17/05/2021	29/05/2021
6	32351201	Real Analysis		Continuation of real sequences and their convergence with more examples and demonstration.	31/05/2021	05/06/2021
7	32351201	Real Analysis	Core	Monotone sequences and their convergence with illustrations.	07/06/2021	12/06/2021
8	32351201	Real Analysis	Core	Bolzano–Weierstrass theorem (statement and examples), Cauchy Sequences and examples.	14/06/2021	19/06/2021
9	32351201	Real Analysis	Core	Examples of Cauchy Sequences, Cauchy Convergence Criterion for sequences.	21/06/2021	26/06/2021
10	32351201	Real Analysis		Limit superior and limit inferior for bounded sequence of real numbers with illustrations.	28/06/2021	03/07/2021
11	32351201	Real Analysis	Core	Definition of an infinite series. Convergence and divergence of infinite series, Sequence of partial sums of infinite series, Necessary condition for convergence,	05/07/2021	10/07/2021
12	32351201	Real Analysis		Cauchy criterion for convergence of series. Geometric series, Cauchy convergence criterion for series. Tests for convergence of positive term series: Integral test of infinite series.	12/07/2021	17/07/2021

Sl. No.	UPC	Paper Name	Core/ AECC/ GE/ SEC	Topic/Unit	Start Date	End Date
13	32351201	Real Analysis	Core	D'Alembert's ratio test and Cauchy's root test.	19/07/2021	24/07/2021
14	32351201	Real Analysis	Core	Alternating series, Leibniz test, Absolute and conditional convergence.	26/07/2021	02/08/2021

Sl. No.	UPC	Paper Name	Core/ AECC/ GE/ SEC	Topic/Unit	Start Date	End Date
1	32351402	Riemann integration and Series of functions	Core	Definition of Riemann integration, Inequalities for upper and lower Darboux sums.	02/01/2021	09/01/2021
2	32351402	Riemann integration and Series of functions	Core	Necessary and sufficient conditions for the Riemann integrability, Definition of Riemann integration by Riemann sum and equivalence of the two definitions.	11/01/2021	16/01/2021
3	32351402	Riemann integration and Series of functions	Core	Riemann integrability of monotone functions and continuous functions, Algebra and properties of Riemann integrable functions.	18/01/2021	23/01/2021
4	32351402	Riemann integration and Series of functions	Core	Definitions of piecewise continuous and piecewise monotone functions and their Riemann	25/01/2021	30/01/2021

				integrability, Intermediate value theorem for integrals.		
5	32351402	Riemann integration and Series of functions	Core	First and second fundamental theorems of integral calculus, and the integration by parts.	01/02/2021	06/02/2021
6	32351402	Riemann integration and Series of functions	Core	Improper integrals of Type-I, Type-II and mixed type. Convergence of beta and gamma functions, and their properties.	08/02/2021	20/02/2021
7	32351402	Riemann integration and Series of functions	Core	Definitions and examples of pointwise and uniformly convergent sequence of functions.	22/02/2021	27/02/2021
8	32351402	Riemann integration and Series of functions	Core	Motivation for uniform convergence by giving examples, Theorem on the continuity of the limit function of a sequence of functions.	27/02/2021	06/03/2021
9	32351402	Riemann integration and Series of functions	Core	The statement of the theorem on the interchange of the limit function and derivative, and its illustration with the help of examples, The interchange of the limit function and integrability of a sequence of functions.	08/03/2021	23/03/2021
10	32351402	Riemann integration and Series of functions	Core	Pointwise and uniform convergence of series of functions, Theorems on the continuity, derivability and integrability of the sum function of a series of functions.	31/03/2021	10/04/2021
11	32351402	Riemann integration and Series of functions	Core	Cauchy criterion for the uniform convergence of series of functions, and the Weierstrass	12/04/2021	17/04/2021

				M-test for uniform convergence.		
12	32351402	Riemann integration and Series of functions	Core	**Definition of a power series, Radius of convergence, Absolute and uniform convergence of a power series**	19/04/2021	24/04/2021
13	32351402	Riemann integration and Series of functions	Core	**Differentiation and integration of power series, Statement of Abel's theorem and its illustration with the help of examples.**	26/04/2021	29/04/2021

E. Outstation Field visits for students

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

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F. 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
563	B.Sc. (Hons.) Mathematics (II sem)	32351201	Test: Real Analysis (H)	Monday 28/07/2021	30/07/2021
582	B.Sc. (Hons.) Mathematics (IV sem)	32351402	Test: Riemann integral and Series of functions	Wednesday 24/04/2021	30/04/2021

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

G. Organization of Department/College Society Meetings by Staff Advisor/Convener

Department/Society	Meeting Date	Purpose

H. College Functions

College Function	Function Date	Role to be played
NA	NA	NA