Lesson Plan
Even Semester (Feb.-May 2023)

Name of Teacher :- Dr. Indu Bala

Class and Section :- B. Sc. I (II Sem)

Subject Name and Code :- BM – 123 : Vector Calculus

1.	01 Feb to 15 Feb	Scalar and vector product of three vectors, product of four vectors. Reciprocal vectors. Vector differentiation
2.	16 Feb to 28 Feb	Scalar Valued point functions, vector valued point functions, derivative along a curve, directional derivatives
3.	01 March to 15 March	Gradient of a scalar point function, geometrical interpretation of grad F , character of gradient as a point function. Divergence and curl of vector point function, characters of Div f and Curl f as point function, examples
4.	16 March to 31 March	Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator
5.	01 April to 15 April	Vector integration; Line integral, Surface integral, Volume integral
6.	16 April to 30 April	Theorems of Gauss, Green & Stokes and problems based on these theorms
7.	01 May to 15 May	Orthogonal curvilinear coordinates Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors.
8.	16 May to 26 May	Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates, Cylindrical co-ordinates and Spherical coordinates

Note:-

The teaching of topics to the students on the dates/days mentioned in the above lesson plan may not be exactly followed and may have little variations/fluctuations because of some unforeseen circumstances. For example: various Functions/Activities organized by the College *(Musical Meet, Blood Donation, Important Days Celebrations, Co-Curricular/Extra-curricular Activities etc.)***, Response of Students in the Class, Request of Students for Repetition of some specific Topics, Unpredicted Leaves, Restricted Holidays etc.**

Students can ask any query on my E-Mail ID also
  - ➢ **E-Mail:**

Lesson Plan
Even Semester (Feb.-May 2023)

Name of Teacher :- Dr. Indu Bala

Class and Section :- B. Sc. II(IV Sem)

Subject Name and Code :- BM -242 : Special Functions And Integral Transforms
BM -241 : SEQUENCES AND SERIES

1.	01 Feb to 15 Feb	Laplace Transforms – Existence theorem for Laplace transforms, Linearity of the Laplace transforms, Shifting theorems, Laplace transforms of derivatives and integrals, Differentiation and integration of Laplace transforms
2.	16 Feb to 28 Feb	Convolution theorem, Inverse Laplace transforms, convolution theorem, Inverse Laplace transforms of derivatives and integrals, solution of ordinary differential equations using Laplace transform.
3.	01 March to 15 March	Series solution of differential equations – Power series method, Definitions of Beta and Gamma functions. Bessel equation and its solution
4.	16 March to 31 March	Bessel functions and their propertiesConvergence, recurrence, Relations and generating functions, Orthogonality of Bessel functions
5.	01 April to 15 April	Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series, Cauchy' s general principle of Convergence of series, Convergence and divergence of geometric series, Hyper Harmonic series or p-series.
6.	16 April to 30 April	Infinite series: D-Alembert's ratio test, Raabe's test, Logarithmic test, de Morgan and Bertrand's test, Cauchy's Nth root test, Gauss Test, Cauchy's integral test, Cauchy's condensation test.
7.	01 May to 15 May	Alternating series, Leibnitz's test, absolute and conditional convergence, Arbitrary series: abel's lemma, Abel's test, Dirichlet's test
8.	16 May to 26 May	Legendre and Hermite differentials equations and their solutions: Legendre and Hermite functions and their properties-Recurrence Relations and generating functions

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Even Semester (Feb.-May 2023)

Name of Teacher :-

Class and Section :-

Subject Name and Code :-

1.	01 Feb to 15 Feb	Jacobians, Beta and Gama functions
2.	16 Feb to 28 Feb	Double and Triple integrals, Dirichlets integrals, change of order of integration in double integrals
3.	01 March to 15 March	Fourier's series: Fourier expansion of piecewise monotonic functions, Properties of Fourier Co-efficients
4.	16 March to 31 March	Dirichlet's conditions, Parseval's identity for Fourier series, Fourier series for even and odd functions, Half range series, Change of Intervals
5.	01 April to 15 April	Vector spaces, subspaces, Sum and Direct sum of subspaces, Linear span, Linearly Independent and dependent subsets of a vector space. Finitely generated vector space
6.	16 April to 30 April	Existence theorem for basis of a finitely generated vactor space, Finite dimensional vector spaces, Invariance of the number of elements of bases sets, Dimensions, Quotient space and its dimension.
7.	01 May to 15 May	Homomorphism and isomorphism of vector spaces, Linear transformations and linear forms on vactor spaces, Vactor space of all the linear transformations
8.	16 May to 26 May	Dual Spaces, Bidual spaces, annihilator of subspaces of finite dimentional vactor spaces, Null Space, Range space of a linear transformation, Rank and Nullity Theorem

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