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| **LESSON PLAN SESSION 2023-2024 (Even Semester)**  **SUBJECT -** Mathematics **Class -** B.Sc. Semester 2 **Paper –** Vector Calculus | | |
| **S.No.** | **WEEK** | **TOPIC** |
| 1 | 15.01.2024-20.01.2024 | Scalar and vector product of three vectors, product of four vectors. |
| 2 | 22.01.2024-27.01.2024 | Reciprocal vectors. Vector differentiation |
| 3 | 29.01.2024-03.02.2024 | Scalar Valued point functions, vector valued point functions |
| 4 | 05.02.2024-10.02.2024 | derivative along a curve, directional derivatives. |
| 5 | 12.02.2024-17.02.2024 | Gradient of a scalar point function, geometrical interpretation of grad  , character of gradient as a point function |
| 6 | 19.02.2024-24.02.2024 | Divergence and curl of vector point function, characters of Div f and Curl f as point function, examples. |
| 7 | 26.02.2024-29.02.2024 | Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator. |
| 8 | 04.03.2024-09.03.2024 | Gradient, divergence and curl of sums and product and their related vector identities. Laplacian operator. (continued) |
| 9 | 11.03.2024-16.03.2024 | Orthogonal curvilinear coordinates Conditions for orthogonality fundamental triad of mutually orthogonal unit vectors |
| 10 | 18..03.2024-22.03.2024 | Gradient, Divergence, Curl and Laplacian operators in terms of orthogonal curvilinear coordinates |
|  | 23.03.2024-31.03.2024 | **HOLI BREAK** |
| 11 | 01.04.2024-06.04.2024 | **HOUSE EXAMS OF EVEN SEMESTER** |
| 12 | 08.04.2024-13.04.2024 | Cylindrical co-ordinates and Spherical co-ordinates |
| 13 | 15.04.2024-20.04.2024 | Vector integration; Line integral, Surface integral, Volume integral. |
| 14 | 21.04.2024-30.04.2024 | Theorems of Gauss, Green & Stokes and problems based on these theorems. |

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| **LESSON PLAN SESSION 2023-2024 (Even Semester)**  **SUBJECT -** Mathematics **Class -** B.Sc. Semester 4 **Paper –** Programming in C and Numerical Methods | | |
| **S.No.** | **WEEK** | **TOPIC** |
| 1 | 15.01.2024-20.01.2024 | Solution of Algebraic and Transcendental equations: Bisection method |
| 2 | 22.01.2024-27.01.2024 | Regula-Falsi method, Secant method, Newton-Raphson’s method |
| 3 | 29.01.2024-03.02.2024 | Newton’s iterative method for finding pth root of a number, Order of convergence of above methods. |
| 4 | 05.02.2024-10.02.2024 | Simultaneous linear algebraic equations: Gauss-elimination method, Gauss-Jordan method |
| 5 | 12.02.2024-17.02.2024 | Triangularization method (LU decomposition method). Crout’s method, Cholesky Decomposition method |
| 6 | 19.02.2024-24.02.2024 | Iterative method, Jacobi’s method, Gauss-Seidal’s method, Relaxation  method. |
| 7 | 26.02.2024-29.02.2024 | Programmer’s model of a computer, Algorithms, Flow charts, Data types |
| 8 | 04.03.2024-09.03.2024 | Operators and expressions, Input / outputs functions. |
| 9 | 11.03.2024-16.03.2024 | Decisions control structure: Decision statements, Logical and conditional statements |
| 10 | 18..03.2024-22.03.2024 | ,  Implementation of Loops, Switch Statement & Case control structures. |
|  | 23.03.2024-31.03.2024 | **HOLI BREAK** |
|  | 01.04.2024-06.04.2024 | **HOUSE EXAMS OF EVEN SEMESTER** |
| 11 | 08.04.2024-13.04.2024 | Functions, Preprocessors and Arrays. |
| 12 | 15.04.2024-20.04.2024 | Strings: Character Data Type, Standard String handling Functions, Arithmetic Operations on Characters. |
| 13 | 21.04.2024-27.04.2024 | Structures: Definition, using Structures, use of Structures in Arrays and Arrays in Structures |
| 14 | 29.04.2024-30.04.2024 | Pointers: Pointers Data type, Pointers and Arrays, Pointers and Functions. |

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| **LESSON PLAN SESSION 2023-2024 (Even Semester)**  **SUBJECT -** Mathematics **Class -** B.Sc. Semester 4 **Paper –** Sequences and Series | | |
| **S.No.** | **WEEK** | **TOPIC** |
| 1 | 15.01.2024-20.01.2024 | Boundedness of the set of real numbers; least upper bound, greatest lower bound of a set, neighborhoods |
| 2 | 22.01.2024-27.01.2024 | interior points, isolated points, limit points, open sets, closed set, interior of a set, closure of a set in real numbers and their properties. |
| 3 | 29.01.2024-03.02.2024 | Bolzano-Weiestrass theorem, Open covers, Compact sets and Heine-Borel Theorem. |
| 4 | 05.02.2024-10.02.2024 | Sequence: Real Sequences and their convergence, Theorem on limits of sequence, Bounded and monotonic sequences, Cauchy’s sequence |
| 5 | 12.02.2024-17.02.2024 | Cauchy general principle of convergence, Subsequences, Subsequential limits.  Infinite series: Convergence and divergence of Infinite Series, Comparison Tests of positive terms Infinite series |
| 6 | 19.02.2024-24.02.2024 | Cauchy’s general principle of Convergence of series, Convergence and  divergence of geometric series |
| 7 | 26.02.2024-29.02.2024 | Hyper Harmonic series or p-series.  Infinite series: D-Alembert’s ratio test, Raabe’s test, Logarithmic test, de Morgan and Bertrand’s test |
| 8 | 04.03.2024-09.03.2024 | Cauchy’s Nth root test, Gauss Test |
| 9 | 11.03.2024-16.03.2024 | Cauchy’s integral test, Cauchy’s condensation test. |
| 10 | 18..03.2024-22.03.2024 | Alternating series, Leibnitz’s test, absolute and conditional convergence |
|  | 23.03.2024-31.03.2024 | **HOLI BREAK** |
|  | 01.04.2024-06.04.2024 | **HOUSE EXAMS OF EVEN SEMESTER** |
| 11 | 08.04.2024-13.04.2024 | Arbitrary series: abel’s lemma, Abel’s test, Dirichlet’s test, Insertion and removal of parenthesis, re-arrangement of terms in a series |
| 12 | 15.04.2024-20.04.2024 | Dirichlet’s theorem, Riemann’s Re-arrangement theorem, Pringsheim’s  theorem (statement only), Multiplication of series |
| 13 | 21.04.2024-27.04.2024 | Cauchy product of series, (definitions and examples only) Convergence and absolute convergence of infinite products. |
| 14 | 29.04.2024-30.04.2024 | Revision of all Units. |

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| **LESSON PLAN SESSION 2023-2024 (Even Semester)**  **SUBJECT -** Mathematics **Class -** B.Sc. Semester 6 **Paper –** Real and Complex Analysis | | |
| **S.No.** | **WEEK** | **TOPIC** |
| 1 | 15.01.2024-20.01.2024 | Jacobians, Beta Functions |
| 2 | 22.01.2024-27.01.2024 | Gamma functions, Double and Triple integrals |
| 3 | 29.01.2024-03.02.2024 | Dirichlet’s integrals, change of order of integration in double integrals. |
| 4 | 05.02.2024-10.02.2024 | Dirichlet’s integrals, change of order of integration in double integrals. (continued) |
| 5 | 12.02.2024-17.02.2024 | Fourier’s series: Fourier expansion of piecewise monotonic functions |
| 6 | 19.02.2024-24.02.2024 | Properties of Fourier Co- efficients, Dirichlet’s conditions, Parseval’s identity for Fourier series |
| 7 | 26.02.2024-29.02.2024 | Fourier series for even and odd functions |
| 8 | 04.03.2024-09.03.2024 | Half range series, Change of Intervals. |
| 9 | 11.03.2024-16.03.2024 | Extended Complex Plane, Stereographic projection of complex numbers, continuity and differentiability of complex functions |
| 10 | 18..03.2024-22.03.2024 | Analytic functions, Cauchy-Riemann equations. |
|  | 23.03.2024-31.03.2024 | **HOLI BREAK** |
|  | 01.04.2024-06.04.2024 | **HOUSE EXAMS OF EVEN SEMESTER** |
| 11 | 08.04.2024-13.04.2024 | Harmonic functions. Mappings by elementary functions: Translation, rotation, Magnification and Inversion. |
| 12 | 15.04.2024-20.04.2024 | Conformal Mappings, Mobius transformations |
| 13 | 21.04.2024-27.04.2024 | Fixed pints, Cross ratio |
| 14 | 29.04.2024-30.04.2024 | Inverse Points and critical mappings. |