Lesson Plan (2023-24)-Even Semester

Name of the Assistant Professor: Dr. Ashish Class and Section: B.Sc. 1st year (4th semester)

Subject: Special Functions and Integral Transforms

|  |  |  |
| --- | --- | --- |
| **WEEK** | **DATE** | **TOPICS** |
| **1** | 15.01.2024 | Series solution of differential equations – Power series method |
| 16.01.2024 | Definitions of Beta and Gamma functions |
| **17.01.2024** | **Guru Gobind Singh Jayanti** |
| 18.01.2024 | Bessel equation and its solution |
| 19.01.2024 | Bessel functions and their properties-Convergence recurrence |
| 20.01.2024 | Revision |
| **2** | 22.01.2024 | Relations and generating functions |
| 23.01.2024 | Relations and generating functions |
| 24.01.2024 | Orthogonality of Bessel function |
| 25.01.2024 | Orthogonality of Bessel function |
| **26.01.2024** | **Republic Day** |
| 27.01.2024 | Problems |
| **3** | 29.01.2024 | Legendre and Hermite differentials equations and their solutions |
| 30.01.2024 | Legendre and Hermite differentials equations and their solutions |
| 31.01.2024 | Legendre and Hermite functions and their properties |
| 01.02.2024 | Legendre and Hermite functions and their properties |
| 02.02.2024 | Recurrence Relations and generating functions. |
| 03.02.2024 | Recurrence Relations and generating functions. |
| **4** | 05.02.2024 | Orhogonality of Legendre and Hermite polynomials |
| 06.02.2024 | Orhogonality of Legendre and Hermite polynomials.  |
| 07.02.2024 | Rodrigues’ Formula for Legendre & Hermite Polynomials, |
| 08.02.2024 | Laplace Integral Representation of Legendre polynomial. |
| 09.02.2024 | Laplace Integral Representation of Legendre polynomial. |
| 10.02.2024 | Revision  |
| **5** | 12.02.2024 | Laplace Transforms |

|  |  |  |
| --- | --- | --- |
|  | 13.02.2024 | Laplace Transforms |
| **14.02.2024** | **Basant Panchami/ Sir Chhotu Ram Jayanti** |
| 15.02.2024 | Existence theorem for Laplace transforms |
| 16.02.2024 | Linearity of the Laplace transforms |
| 17.02.2024 | Class Test |
| **6** | 19.02.2024 | Linearity of the Laplace transforms |
| 20.02.2024 | Shifting theorems, |
| 21.02.2024 | Laplace transforms of derivatives and integrals |
| 22.02.2024 | Laplace transforms of derivatives and integrals |
| 23.02.2024 | Differentiation and integration of Laplace transforms |
| **24.02.2024** | **Guru Ravidas Jayanti** |
| **7** | 26.02.2024 |  Differentiation and integration of Laplace transforms |
| 27.02.2024 | Convolution theorem |
| 28.02.2024 | Convolution theorem |
| 29.02.2024 | Inverse Laplace transforms |
| 01.03.2024 | Inverse Laplace transforms |
| 02.03.2024 | Revision  |
| **8** | 04.03.2024 | Convolution theorem |
| 05.03.2024 | Inverse Laplace transforms of derivatives and integrals |
| 06.03.2024 | Inverse Laplace transforms of derivatives and integrals |
| 07.03.2024 | Problems |
| **08.03.2024** | **Maha Shivratri** |
| 09.03.2024 | Test |
| **9** | 11.03.2024 | Solution of ordinary differential equations using Laplace transform. |
| 12.03.2024 | Solution of ordinary differential equations using Laplace transform. |
| 13.03.2024 | Solution of ordinary differential equations using Laplace transform. |
| 14.03.2024 | Solution of ordinary differential equations using Laplace transform. |
| 15.03.2024 | Revision  |
| 16.03.2024 | Problems  |
| **10** | 18.03.2024 | Fourier transforms |

|  |  |  |
| --- | --- | --- |
|  | 19.03.2024 | Fourier transforms |
| 20.03.2024 | Fourier transforms |
| 21.03.2024 |  Linearity property |
| 22.03.2024 | Linearity property |
| **23.03.2024** | **Holi Vacation** |
| **11** | 25.03.2024 | **Holi Vacation** |
| 26.03.2024 | **Holi Vacation** |
| 27.03.2024 | **Holi Vacation** |
| 28.03.2024 | **Holi Vacation** |
| 29.03.2024 | **Holi Vacation** |
| 30.03.2024 | **Holi Vacation** |
| **12** | 01.04.2024 | Revision  |
| 02.04.2024 | Shifting, Modulation |
| 03.04.2024 | Shifting, Modulation |
| 04.04.2024 | Convolution Theorem, |
| 05.04.2024 | Convolution Theorem, |
| 06.04.2024 | Fourier Transform of Derivatives |
| **13** | 08.04.2024 | Fourier Transform of Derivatives |
| 09.04.2024 | Relations between Fourier transform and Laplace transform |
| 10.04.2024 | Parseval’s identity for Fourier transforms |
| **11.04.2024** | **Id-ul-Fitr** |
| 12.04.2024 | Solution of differential Equations using Fourier Transforms. |
| 13.04.2024 | **Vaisakhi** |
| **14** | 15.04.2024 | Solution of differential Equations using Fourier Transforms. |
| 16.04.2024 | Solution of differential Equations using Fourier Transforms. |
| **17.04.2024** | **Ram Navmi** |
| 18.04.2024 | Revision |
| 19.04.2024 | Revision |
| 20.04.2024 | Revision |
| **15** | 22.04.2024 | Revision |
| 23.04.2024 | Revision |