**DAILY ASSESSMENT FORMAT**

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| **Date:** | **18-05-2020** | **Name:** | **Kiran N** |
| **Course:** | **DSP** | **USN:** | **4al16ec031** |
| **Topic:** | **Fourier series and Fourier transform, Hilbert transform,**  **Fourier series using mat lab and**  **python and Gibbs phenomenon**  **using mat lab.** | **Semester & Section:** | **8th and A** |
| **Github Repository:** | **Kiran-course** |  |  |

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| **FORENOON SESSION DETAILS** |
| Report –  A Fourier transform (FT) is a mathematical transform which decomposes a function(often a function of time, or a signal) into its constituent frequencies, such as the expression of a musical chord in terms of the volumes and frequencies of its constituent notes. The term Fourier transform refers to both the frequency domain representation and the mathematical operation that associates the frequency domain representation to a function of time.  Fourier series is a periodic function composed of harmonically related sinusoids, combined by a weighted summation. With appropriate weights, one cycle (or period) of the summation can be made to approximate an arbitrary function in that interval (or the entire function if it too is periodic). As such, the summation is a synthesis of another function. The discrete-time Fourier transform is an example of Fourier series.  The process of deriving the weights that describe a given function is a form of Fourier analysis. For functions on unbounded intervals, the analysis and synthesis analogies are Fourier transform and inverse transform.      Gibbs phenomenon, discovered by Henry Wilbraham (1848) and rediscovered by J. Willard Gibbs (1899), is the peculiar manner in which the Fourier series of a piecewise continuously differentiable periodic function behaves at a jump discontinuity.  The nth partial sum of the Fourier series has large oscillations near the jump, which might increase the maximum of the partial sum above that of the function itself.  The overshoot does not die out as n increases, but approaches a finite limit. This sort of behaviour was also observed by experimental physicists, but was believed to be due to imperfections in the measuring apparatus. |

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