

Lecture - 04

LAPLACE TRANSFORM :

Laplace Transform:

$$f(t) \xleftrightarrow{L.T} F(s)$$

$$F(s) = L\{f(t)\} = \int_0^{\infty} e^{-st} f(t) dt.$$

STANDARD RESULTS:

1. $L\{1\} = \frac{1}{s}$

2. $L\{t^n\} = \frac{n!}{s^{n+1}} ; \text{ if } n \text{ is integer}$

3. $L\{e^{at}\} = \frac{1}{s-a}$

4. $L\{\sin at\} = \frac{a}{s^2+a^2}$

5. $L\{\cos at\} = \frac{s}{s^2+a^2}$

6. $L\{t^n\} = \frac{\Gamma(n+1)}{s^{n+1}} ; \text{ if } n \text{ is a fraction.}$