

**Faculty of Engineering & Technology**  
**Transformations & Numerical Analysis**

**Information :**

**Course Code :** EMP212

**Level :** Undergraduate

**Course Hours :** 4.00- Hours

**Department :** Structural Engineering & Construction Management

**Instructor Information :**

Title	Name	Office hours
Lecturer	Basma Magdy Ahmed Mohamed	4
Teaching Assistant	Mahmoud Mohamed Khalaf Ahmed	

**Description :**

Laplace transformation: definitions, properties and theorems, Inverse transform, Solution of ordinary differential and integral equations by Laplace transform, Heaviside function and related theorems, Periodic functions and Dirac delta functions, Applications, Vector analysis: scalar and vector fields, Directional derivative, gradient, divergence and curl, Gauss's and Stokes's theorems, Fourier series: usual and arbitrary period, Fourier series of odd and even functions, Definitions and properties of Fourier transform with applications, Partial differential equations: definitions, types- D'fflambert solution of wave problem, Separation of variables for heat, wave, Laplace's equations in different systems of coordinates.