

**Faculty of Engineering & Technology**  
**Differentiation with Applications and Algebra**

**Information :**

**Course Code :** EMP111

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Faculty of Engineering & Technology

**Instructor Information :**

| Title              | Name                                          | Office hours |
|--------------------|-----------------------------------------------|--------------|
| Lecturer           | Ahmed Mostafa Kamel Elsherbeny                | 1            |
| Lecturer           | Basma Magdy Ahmed Mohamed                     | 2            |
| Assistant Lecturer | Mohamed Yahia Mohamed Abdelkader              |              |
| Teaching Assistant | Mohamed Fathy Salem Mohamed                   |              |
| Teaching Assistant | Farah Hossam Eldin Mahmoud Abdelhamed Ibrahim |              |
| Teaching Assistant | Mariam Mohamed Ali Ahmed Elshimey             |              |
| Teaching Assistant | Abeer Tharwat Said Awad                       |              |

**Description :**

Calculus: Derivatives with all rules, Trigonometric functions and their derivatives, Definitions, properties, derivatives of transcendental functions. Hyperbolic and inverse hyperbolic functions. Application of derivatives: Extreme of functions and Curve sketching, Differentials and linear Approximation, Chain Rule and Implicit differentiation, Indeterminate forms and L'Hopital's rule, Derivatives in parametric functions.

Algebra: Definitions and properties of determinant and matrices; System of Linear equations, Eigen values and Eigenvectors of a matrix with applications, Gauss elimination method. Theory of nonlinear equations Numerical methods: Iteration methods, Newton's and modified Newton's method, Secant method