

**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           | Hany Abd El Ghaffar Abd El Aty El Deeb   | 2            |
| Assistant Lecturer | Doaa Nabil Sayed Mohamed Elsayed Khodair |              |
| Teaching Assistant | Mariam Mohamed Kamal Abdelaziz           |              |
| Teaching Assistant | Sameh Mostafa Abdelwahab Ali             |              |

**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