

Faculty of Engineering & Technology

Differentiation with Applications and Algebra (Math 1)

Information :

Course Code : MTH 111

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	
Assistant Lecturer	Doaa Nabil Sayed Mohamed Elsayed Khodair	10
Teaching Assistant	Mariam Mohamed Kamal Abdelaziz	
Teaching Assistant	Sameh Mostafa Abdelwahab Ali	

Description :

- 1) Calculus:
 - A) Concept of a function, limits, Continuity, and Differentiation.
 - B) Rules of Differentiation. Chain rule, Implicit Differentiation. Differentiation of parametric functions.
 - C) Transcendental functions and differentiation. Trigonometric and Inverse Trigonometric Functions. Exponential and Logarithmic Functions.. Hyperbolic and inverse hyperbolic functions.
 - D) Indeterminate Forms and L'Hopital's Rule.
 - E) Application of derivatives. Taylor and Maclaurin expansion, polynomial, and series. Extrema of a function. Asymptote lines, Curve Sketching.
- 2) Algebra:
 - A) Definitions and properties of determinants and matrices, Algebra of Matrices.
 - B) Reduced matrix. Rank of a Matrix. Solution of linear systems using inverse Matrix, and Cramer's Rule.
 - C) Gauss - Jordan Method. Homogeneous and non homogeneous systems. Square and rectangular systems.
 - D) Solution of linear algebraic systems by Iterative Methods. Jacobi method, Seidel Method.
 - E) Eigenvalues and Eigenvectors.