FUTURE UNIVERSITY IN EGYPT
جامعة المستقبل

Faculty of Engineering & Technology

Discrete Mathematics & Numerical Methods

Information :

Course Code :	EMP311	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours
Department :	Biomedical Engineering				

Description :

Sets: basics, set operations; Functions: one-to-one, onto, inverse, composition, graphs; Euclidean algorithm; Sequences and Summations; Mathematical reasoning: Proof strategies, Mathematical Induction, Recursive definitions, Structural Induction; Counting: basic rules, Pigeon Hall principle; Permutations and combinations, Binomial coefficients and Pascal triangle. Relations: properties, Combining relations, Closures, Equivalence, partial ordering; Graphs, directed, undirected graphs.
Numerical methods: interpolation, Least-Squares methods, numerical solutions to initial & boundary value problems: Euler and Rung-Kutta methods, numerical differentiation and integration, solution of non-linear algebraic equation. Applications using MATLAB.