

Faculty of Engineering & Technology

Discrete Mathematics & Numerical Methods

Information :

| Course Code : | EMP311 | Level | : | Undergraduate | Course Hours : | 3.00- Hours |
|------------------|------------------------------|-------|---|---------------|----------------|-------------|
| Department : | Electrical Power Engineering | | | | | |
| Instructor Infor | mation : | | | | | |

| Title | Name | Office hours | | | |
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| Lecturer | Hany Abd El Ghaffar Abd El Aty El Deeb | 2 | | | |
| Teaching Assistant | Salma Motaz Fouad Ali El Sherif | | | | |

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.