Diyala University
College of Engineering
Computer Engineering Department

Third Year
First Semester

CPE 301	**Engineering Analysis**	**Units: 3**

Theory	**3 hrs/w**
Tutorial	
Practical	

	Contents	Hours
1	**Power Series Solutions of D.Es (Ordinary Points and Frobenius Method)**	6
2	**Applications of Differential equations**	6
3	**The Z-Transform** 3.1 Z-Transform 3.2 Solution of Linear Difference Equations Using Z- Transform	9
4	**Gama, Beta and Bessel's Functions**	6
5	**Complex Variables** 5.1 Limit and Continuity 5.2 Analytic Functions 5.3 Cauchy and Their Riemman	6
6	**Elementary Complex Functions** 6.1 Exponential, Logarithm 6.2 Trigonometric 6.3 Hyperbolic 6.4 Their Inverse	3
7	**Integration In Complex Plan**	3
8	**Residues And Residue Theorem**	3

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9	**Inverse Evaluation of Z-T using Residue Principle**	3

Prerequisites:

- **Applied Mathematics II (E 202)**

Textbook:

- Erwin Kreyszig, Herbert Kreyszig, Edward J. Norminton *"Advanced Engineering Mathematics"*, tenth Edition, 2011

References:

- Hwei P. Hsu, Ph.D. "*Theory and Problems of Signals and Systems*", 1995
- Robert Wrede, Ph.D. and Murray R. Spiegel, Ph.D." *Advanced Calculus*" Third Edition, 2010
- Eugene Don, Ph.D. "*Schaum's outlines Mathematica*", Second Edition, 2009

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Course Name: Engineering Analysis

Credit Hours: (3-3-0-0)

Prerequisites: Applied Mathematics II (E 202**)**

Course Contents: Power Series Solutions of D.Es (Ordinary Points and Frobenius Method, Applications of Differential equations, Z-Transform, Solution of Linear Difference Equations Using Z-Transform, Gama , Beta and Bessel's Functions:, Complex Variables, Limit and Continuity, Analytic Functions, Cauchy and Their Riemman, Elementary Complex Functions, Exponential, Logarithm, Trigonometric, Hyperbolic, and Their Inver, Integration In Complex Plan, Residues And Residue Theorem, Inverse Evaluation of Z-T using Residue Principle.