CE322	**Advanced Mathematics**	**3 Hr/Week**	**3 Units**

Contents of syllabus	Hours
## 1- Complex Variables • **Functions of CV (polynomial, rational, power, exponential, trigonometric and logarithmic functions)** • **Complex derivative** • **Cauchy-Riemann equations** • **Complex integration** • **Simply and multiply connected regions** • **Cauchy integral theorems** • **Residue theorem and Calculation of residues** • **Solving of Real Integrals using CV**	12
## 2- Numerical Analysis • **Isolation of the roots** • **Accuracy and types of errors** • **Methods of locating roots** • **Fixes point iteration** • **Bisection method** • **False position method** • **Newton-Raphson method** • **Gauss-Seidel Iteration to solve equations of linear system** • **Curve Fitting** • **Least square method** • **Power fit method** • **Data linearization for curve fitting** • **Interpolation (linear and polynomial)**	10
## Probability and Statistics	8

References:

References:

[1] E.Kreyszig "Advanced engineering mathematics"

[2] C.Ray Wylie "Advanced engineering mathematics"

[3] Ronald E. Walpole "Probability & Statistics for Engineers & Scientists", 9th edition, Prentice Hall, 2012.