



Sungkyunkwan University (SKKU) International Summer Semester (ISS) 2019

[Engineering Mathematics II]

Prof. Lois S. Simon, Sungkyunkwan University

SHORT COURSE DESCRIPTION

We hope to cover the following and related topics from Linear Algebra, Complex Analysis and a few from Differential Equations: Matrices, Matrix Multiplication, Linear Systems of Equation: Gaussian Elimination, Rank, Inverses of Matrices, Eigenvalues and Eigenvectors, Special Matrices, Diagonalization, Quadratic Forms, Fourier Series, Even and Odd Functions, Fourier Integral, Complex Numbers, Complex Plane, Polar Form, Derivative: Analytic Functions, Cauchy-Riemann Equations, Exponential Function, Logarithm, Principal Values.

READING MATERIALS

The course covers topics in Advanced Engineering Mathematics 9th Ed. by E. Kreiszig

COURSE REQUIREMENTS AND GRADING

All ISS courses are either pass or fail, grades above 60 are assigned pass.

Grade Distribution (out of 100): Attendance – 20; Participation – 10; Quizzes – 35; Exam – 35

Attendance:

SKKU requires students to attend at least 80% of all class meetings. We have 15 class meetings, you may miss 2 without providing an excuse or incurring penalty.

Academic Dishonesty:

Cheating, plagiarism or knowingly providing false information for example lying, using a substitute during a quiz and/or examination, cheat sheets, copying during examinations etc. are prohibited. If caught, the given assignment will be scored zero.

COURSE SCHEDULE

– WEEK I –

Thursday (27 June) Complex Number, Complex Plane, Polar Form, Powers and Roots

Friday (28 June) Derivative: Analytic Functions, Cauchy-Riemann Equations, Laplace's Equations

– WEEK II –

Monday (1 July) Exponential Function, Trigonometric and Hyperbolic Functions

Tuesday (2 July) Logarithm, General Power, Principle Value

Wednesday (3 July) Fourier Series, Functions of any Period $P=2L$

Thursday (4 July) Even and Odd Functions, Half Range Expansions, Complex Fourier Series

– WEEK III –

Monday (8 July) Fourier Integral, Fourier Cosine and Sine Transform

Tuesday (9 July) Matrices, Matrix Multiplication, Linear System of Equation: Gaussian Elimination

Wednesday (10 July) Rank, Solution of Linear Systems

Thursday (11 July) Inverse of a Matrix: Gauss – Jordan Elimination, Linear Transformations

– WEEK IV –

Monday (15 July) Eigenvalues and Eigenvectors, Symmetric, Skew-symmetric and Orthogonal Matrices

Tuesday (16 July) Diagonalization, Quadratic Forms, Complex Matrices and Forms

Wednesday (17 July) To Be Announced (TBA)

Thursday (18 July) To Be Announced (TBA)

Friday (19 July) To Be Announced (TBA)