

Text: Advanced Engineering Mathematics, Zill, Jones &amp; Bartlett, 7th edition, 2021

Tentative Schedule and Assignments (subjected to change with or without notice in advance)

	Section	Topics	Homework problems	Due
Chapter 4: The Laplace Transform				
#1 1/18	4.1	Definition of the Laplace transform	2, 3, 5, 7, 13; 23, 29, 35, 41	1/24
	4.2.1	Inverse Laplace Transform	1, 3, 6, 11, 15, 17, 18, 23	1/24
#2 1/20	4.2.2	Laplace Transform of Derivatives; Linear Differential Equations	33, 34, 35, 38	1/24
#3 1/25	4.3	<b>(Quiz 1)</b> Translation Theorems Unit Step Function (Heaviside Function)	<b>4.1:</b> 13; 4.3: 3, 7, 11, 15; 4.3: 28; 44, 49, 60; 71 ( <b>6<sup>th</sup>ed:</b> 24; 40, 45, 56; 63) <b>4.1:</b> 2, 3, 5, 7	1/31
#4 1/27	4.4.1	Derivatives of Transforms	<b>4.1:</b> 13 4.4: 3, 8, 11, 13	1/31
	4.4.2	Transforms of Integrals; Convolution, Volterra Integral Equation	26, 31, 37, 41, 48 ( <b>6<sup>th</sup>ed:</b> 22, 27, 33, 37, 42)	1/31
#5 2/01	4.4.3	<b>(Quiz 2)</b> Transforms of a Periodic Function	65, 68 ( <b>6<sup>th</sup>ed:</b> 49, 52)	2/07
	4.5	Dirac Delta Function, Impulse Response Function	1, 3, 8, 10	2/07
#6 2/03	4.6	Systems of Linear Differential Equations	1, 3	2/07
Chapter 8: Linear Algebra				
#7 2/08	8.1	<b>(Quiz 3)</b> Matrix Algebra	15, 17, 23, 42	2/14
	8.2	Systems of Linear Algebraic Equations	3, 5, 9, 10, 11, 15	2/14
	Additional Readings: 7.6 Vector Spaces, 8.3 Rank of a Matrix			
#8 2/10	8.4	Determinants	11, 13, 15, 21, 25, 27, 29	2/14
	8.5	Properties of Determinants	11, 15, 25, 29	2/14
#9 2/15	8.6	<b>(Quiz 4)</b> Inverse of a Matrix	2, 5, 15, 23, 27, 31, 47, 53	2/21
	8.7	Cramer's Rule	1	2/21
#10 2/17	8.8	Eigenvalue Problem	3, 5, 13, 15, 21	2/21

#11 2/22	8.10	<b>(Quiz 5)</b> Orthogonal Matrices	1, 5, 7, 13, 15	2/28
	8.12	Diagonalization of Matrices	3, 5, 13, 21, 25, 27, 37, 39	2/28
	Additional Readings: 7.7 Gram-Schmidt Process			
#12 2/24	Catch up and review			
#13 3/01	First midterm exam on Chapter 4 and Chapter 8 (closed book - formula sheet provided)			
Chapter 12: The Fourier Series				
#14 3/03	12.1	Orthogonal Sets of Functions	1, 3, 5, 9, 11	3/07
#15 3/08	12.2	<b>(Quiz 6)</b> Fourier Series	1, 5, 9, 21 (6 <sup>th</sup> ed: 17)	3/21
#16 3/10	12.3	Fourier Sine and Cosine Series, Half range expansions	1, 3, 5, 8, 13, 19, 23	3/21
	Additional Readings: 12.4 Complex Fourier Series			
#17 3/22	3.9	<b>(Quiz 7)</b> Boundary Value Problems (BVP)	11, 16	3/28
	12.5	Regular Sturm-Liouville Problems	1, 5	3/28
Chapter 13 (and 14): Partial Differential Equations; Separation of Variables				
#18 3/24	13.1	Separable Partial Differential Equations	3, 9, 15; 17, 21, 23	3/28
#19 3/29	13.2	<b>(Quiz 8)</b> Classical PDEs and BVPs	1, 3, 5, 7, 8, 11	4/04
#20 3/31	13.3	Heat Equation	2, 5, 6 (6 <sup>th</sup> ed: 2, 3, 4)	4/04
#21 4/05	13.4	<b>(Quiz 9)</b> Wave Equation	1, 3, 5, 8	4/11
#22 4/07	13.5	Laplace's Equation	3, 4, 5, 15	4/11
#23 4/12	Second midterm exam on Chapter 12 and Chapter 13 (closed book - formula sheet provided)			
#24 4/14	13.6	Nonhomogeneous BVP	1, 3, 5, 9, 10	4/18
#25 4/19	13.7	Orthogonal Series Expansions for BVP	1, 2, 5, 7	4/25
#26 4/21	13.8	<b>(Quiz 10)</b> Fourier Series in Two Variables	1, 3, 5	4/25
#27 4/26	14.1	Laplace's Equation in Polar Coordinates	1, 3, 7	5/02
#28 4/28	Catch up and review			