



COURSE: ALGEBRA		
DEGREE: ENERGY ENGINEERING	YEAR: 1	TERM: 1

WEEKLY PLANNING									
WEEK	SESSION	GROUP	DESCRIPTION	TYPE			NOTES	HOURS	
				LECTURE	PROBLEMS	EXAM		CLASS	WEEKLY TOTAL
1	1	Large	<ul style="list-style-type: none"> • PRESENTATION • CHAPTER 1: COMPLEX NUMBERS <ul style="list-style-type: none"> · Numbers sets · Necessity of complex numbers · Binomial form of a complex number · Graphical representation · Operations · Complex conjugate, modulus, argument · Polar form of a complex number 	X			New Chapter!	1.66	7
	2	Small	<ul style="list-style-type: none"> • CHAPTER 1: COMPLEX NUMBERS Problems 		X			1.66	
2	1	Large	<ul style="list-style-type: none"> • CHAPTER 1: COMPLEX NUMBERS <ul style="list-style-type: none"> · Roots of complex numbers · Exponential of a complex number · Solving equations · Mandelbrot set 	X				1.66	7
	2	Small	<ul style="list-style-type: none"> • CHAPTER 1: COMPLEX NUMBERS Problems 		X			1.66	
3	1	Large	<ul style="list-style-type: none"> • CHAPTER 2: LINEAR EQUATIONS <ul style="list-style-type: none"> · Introduction to Linear Equations · Geometrical Interpretation · Existence and Uniqueness · Matrix Notation · Gaussian Elimination · Row Equivalence and Echelon Forms 	X			New Chapter!	1.66	7
	2	Small	<ul style="list-style-type: none"> • CHAPTER 2: LINEAR SYSTEMS Problems 		X	X		1.66	
4	1	Large	<ul style="list-style-type: none"> • CHAPTER 2: LINEAR EQUATIONS <ul style="list-style-type: none"> · Solving Linear Systems · Homogeneous Systems · Simultaneous Solving · Systems with parameters 	X				1.66	7
	2	Small	<ul style="list-style-type: none"> • CHAPTER 2: LINEAR SYSTEMS Problems 		X			1.66	
5	1	Large	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n <ul style="list-style-type: none"> · Vectors · Linear Subspace · Linear Combinations · Subspace Spanned by Vectors · Column and Row Spaces 	X			New Chapter!	1.66	9
	2	Large	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n <ul style="list-style-type: none"> · The Matrix Equation $Ax=b$ · Null Space · Revisiting Linear Systems 	X				1.66	
	3	Small	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n Problems 		X	X		1.66	
6	1	Large	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n <ul style="list-style-type: none"> · Linear Independence · Basis for a Linear Subspace · Dimension of a Linear Subspace · Basis for ColA, RowA and NulA · Rank of a Matrix · Coordinate Systems 	X				1.66	7
	2	Small	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n Problems 		X			1.66	

7	1	Large	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n <ul style="list-style-type: none"> · Coordinate Systems · Introduction to Linear Transformations 	X				1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 3: THE VECTOR SPACE \mathbb{K}^n Problems 		X			1.66		
8	1	Large	<ul style="list-style-type: none"> • CHAPTER 4: MATRIX ALGEBRA <ul style="list-style-type: none"> · Matrix Operations · Transpose of a Matrix · Conjugate Transpose of a Matrix · Inverse of a Matrix 	X			New Chapter!	1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 4: MATRIX ALGEBRA Problems 		X	X		1.66		
9	1	Large	<ul style="list-style-type: none"> • CHAPTER 4: MATRIX ALGEBRA <ul style="list-style-type: none"> · Inverse of a Matrix · Partitioned Matrices · Determinants 	X				1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 4: MATRIX ALGEBRA Problems 		X			1.66		
10	1	Large	<ul style="list-style-type: none"> • CHAPTER 5: EIGENVALUES & EIGENVECTORS <ul style="list-style-type: none"> · Eigenvalues & Eigenvectors · The Characteristic Equation · Diagonalization 	X			New Chapter!	1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 5: EIGENVALUES AND EIGENVECTORS Problems 		X	X		1.66		
11	1	Large	<ul style="list-style-type: none"> • CHAPTER 5: EIGENVALUES & EIGENVECTORS <ul style="list-style-type: none"> · Change of Basis · Transformations between Linear Subspaces 	X				1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 5: EIGENVALUES AND EIGENVECTORS Problems 		X			1.66		
12	1	Large	<ul style="list-style-type: none"> • CHAPTER 6: ORTHOGONALITY <ul style="list-style-type: none"> · Dot Product and Modulus · Orthogonal Sets · Unitary Matrices 	X			New Chapter!	1.66	7	
	2	Small	PROBLEMS (To be determined)		X	X		1.66		
13	1	Large	<ul style="list-style-type: none"> • CHAPTER 6: ORTHOGONALITY <ul style="list-style-type: none"> · Orthogonal Complement · Orthogonal Projection · The Gram-Schmidt Process 	X				1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 6: ORTHOGONALITY Problems 		X			1.66		
14	1	Large	<ul style="list-style-type: none"> • CHAPTER 6: ORTHOGONALITY <ul style="list-style-type: none"> · Least-Squares Problems • CHAPTER 7: NORMAL MATRICES <ul style="list-style-type: none"> · Schur Decomposition · Normal Matrices · Particular Cases of Normal Matrices 	X			New Chapter!	1.66	7	
	2	Small	<ul style="list-style-type: none"> • CHAPTER 6: ORTHOGONALITY Problems • CHAPTER 7: NORMAL MATRICES Problems 		X	X		1.66		
							Subtotal	48.14	100	
			Total 1 (Hours of class plus student homework hours between weeks 1-14)						148.14	
15-16			TUTORIALS AND EXAMEN PREPARATION					28.36		
17			FINAL EXAM			X		3.5		
			Total 2 (Hours of class plus student homework hours between weeks 15-18)						31.86	
TOTAL (Total 1 + Total 2)								180		