EE 252 **Spring 2004–05**
Len Tyler **Handout #2**

ANTENNAS FOR TELECOMMUNICATIONS AND REMOTE SENSING

SYLLABUS 26 March 2005

Meeting & Day		Topic(s) for Discussion	Reading Material		
			Required	Supplementary	
1	W Mar.30	Introduction to course Organization and Goals Background needed Blue Cards Grading scheme Show and Tell Antenna Concepts	S&T 1.1–1.5	K Ch. 1	K&M Ch. 1
2	F Ap.1	Vector Helmholtz Equation from Maxwell's Equations Solutions Implications for fields at great distances	"		
3	M Ap.4	Application of Vector Potential to Simple Antennas: The Ideal Dipole Reactive Field region (Near Field) Transition Field region (Intermediate Field) Propagating Field region (Far Field)	S&T 1.6 S&T 1.7…	K 2.1–2.13, 2.19–2.35, 2.38, 3.1–3.4, 3.13–3.18	K&M 2.1–2.17, 4.1–4.4, 4.5–4.7.
4	W Ap.6	Summary of Ideal Dipole Fields Power Flow Comments of Field Regions			
5	F Ap.8	Antenna Parameters	S&T 1.7–1.10		
6	M Ap.11	Antenna Parameters(2) Connection between Transmitting and Receiving Connection between Gain and Effective Area			
7	W Ap.13	Finite Length Dipole	S&T 2.1, 2.2, 5.1	K 5.1–5.3, 5.5–5.8	K&M Ch. 6
8	F Ap.15	Short Dipole and Half-Wavelength Dipole Compared			
9	M Ap.18	Spare Day for Discussion, etc.			
10	W Ap.20	Driving Point Impedance: an Example Analytic Calculation			

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11	F Ap.22	Moment Method Approach to Numerical Solution	S&T 10.1–10.3	K 9.1–9.14	K&M 14.1–14.9
12	M Ap.25	Moment Method Approach to Numerical Solution(2)	S&T 10.6	K 9.15–9.17	K&M 14.10–14.12
13	W Ap.27	Fields from Small Loops	S&T 2.4	K 6.1–6.12	K&M Ch. 7
14	F Ap. 29	Magnetic Dippoles Electric and Magnetic Dipoles Compared			
15	M Ma.2	Balanced and Unbalanced Antennas/Transmission Line Systems The "Balun"Moment	S&T 5.2, 5.3	K 16.11	K&M Ch. 23
16	W Ma.4	Balanced and Unbalanced Systems (2)			
17	F Ma.6	Introduction to Arrays	S&T 3.1-3.4, 3.6 (Optional 3.5,3.7, 3.8)	K 4.1–4.11, 4.14, 4.17, 4.18	K&M 5.1–5.8, 5.12, 5.15–5.16
18	M Ma.9	Example Arrays Discrete in Line Parasitic Arrays Log-Periodic Arrays	S&T 5.4	K 11.1–11.9	K&M 16.1-16.9 8.5,8.6
19	W Ma.11	Example Arrays (2)			K&M Ch. 23
20	F Ma.13	Introduction to Aperture Antennas • Definition • Equivalent Sources on the Aperture • The Equivalence Principle	S&T 7.1–7.3	K 12.1–12.12	K&M 9.1–9.15, 10.1–10.8, 19.1–19.5
21	M Ma.16	Application of the Equivalence Principle • Canonical Forms • Example of an Aperture in a Conducting Plane			
22	W Ma.18	Comparison of Approaches to Aperture in Conducting Plane			
23	F Ma.20	Optics of Large Aperture Antennas	S&T 75.–7.6		
24	M Ma.23	Antenna Optics (2) Review			

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			Required	Supplementary	
25	W Ma.25	Antenna Temperature and Noise	Tyler H. O.	K 17.1–17.4	TBD
26	F Ma.27	Review			
	M Ma.30	Memorial Day, No Class			
27	W Jun. 1	Review			
		Final Project Due: Noon, Friday June 3rd.			