ECET 3410 – Comprehensive Review Outline

Textbook Chapter 1 – Sections 1,2,3,4   **PowerPoint Presentations 1 & 2**

c, λ, ν, f	Two Wire Open-Lines
TEM	Coaxial Lines
Characteristic Impedance	$\varepsilon, \varepsilon_o, \varepsilon_r, \mu, \mu_o, \mu_r$

Chapter 2 – Sections 1,2,4   **PowerPoint Presentations 1 & 2**

Lossless Transmission Lines	Reflection Coefficient
Incident and Reflected Waves	Time Domain Reflectometry

Chapter 3 – Sections 1,2,3,4,7,8,9,12,13   **PowerPoint Presentation 3**

Lossy Transmission Line Model	Matched Transmission Line
AC Steady-State Solution	Nepers and Decibels
Voltage and Current	Mismatched Lines
Characteristic Impedance Z_o	Input Impedance
Propagation Constant γ	SC & OC Lines
Phase Constant β	Standing Wave Patterns
Attenuation Constant α	VSWR

Chapter 4 – Sections 1,2,3   **PowerPoint Presentations 4 & 5**

Smith Charts	Problem Solving
Z, Y, VSWR, Γ	Lossy Lines

Chapter 5 – Sections 1,2   **PowerPoint Presentations 4 & 5**

Slotted Lines	Slotted Line Measurements

Chapter 6 – Sections 1,2,3   **PowerPoint Presentation 6**

Impedance Matching	¼ Wavelength Tuners
Ideal Transformers	Single Stub Tuners

Chapter 7 – Sections 1,2,3,5,6,7   **PowerPoint Presentations 7 & 8**

Voltage Potentials & Electric Fields	Good Conductors
Current & Magnetic Fields	Skin Depth / Depth of Penetration
Self-Propagating EM Fields	Rectangular Waveguides
Uniform Plane Waves	Modes of Propagation (TE)
Intrinsic Impedance & Propagation Constant	Fundamental (Dominant) Mode
Velocity of Propagation – Lossless Media	Cutoff Frequency

INFORMATION REGARDING EXAM III AND THE FINAL EXAM:

Exam III is closed-book, except for one, 8½"x11" sheet of handwritten notes that may not contain any numerically-solved problems. This exam will be given in two parts:

Part A – "In Class"   and   Part B – "Take Home"

This is exam will cover all of the course material (theoretical concepts & numerical problems) that were not covered by Exams I and II, beginning with Single-Stub Tuners. Additionally, Exam III will also cover all of the theoretical concepts that were covered by Exams I and II.

The **Final Exam** is comprehensive, covering all course material from the entire semester, including both the theoretical concepts and the numerical problems. In addition to the one, 8½"x11" sheet of handwritten notes (that may not contain any numerically-solved problems) that was allowed during Exams I, II and III, you are also allowed to utilize your textbook during the exam.