

Reading

*This list will be continuously updated.
The Connor & Salon Reading needs some modifications.*

Generally the reading in this course will be from the textbook or the class notes. The textbook is *Fundamentals of Applied Electromagnetics* by Ulaby. The class notes by Connor and Salon can be found on the course WebCT site.

Studio Session 1: None

Lecture 1: (Introduction to Fields and Waves) Ulaby – Chapter 1 for general background and a quick review of electric and magnetic fields, complex numbers and phasor notation. Chapter 2, sections 2-2, 2-2, and 2-3, for the development of the wave equation which characterizes voltages and currents on transmission lines. Connor & Salon – Pages 1,2, 3 of Unit 12 and 1,2 of Unit 13 which both address the derivation of the wave equation for voltage and current.

Lecture 2: (Introduction to Lossless Transmission Lines) Ulaby – Chapter 2, sections 2-4, 2-5, 2-6, and 2-7 for voltages and currents on lossless transmission lines. Connor & Salon – Unit 13, pages 3-17 on lossless transmission lines.

Studio Session 2: (Agilent Intuilink and Lumped Transmission Lines)

Lecture 3: (Input Impedance of Transmission Lines) Ulaby – Chapter 2, section 2-6, 2-7 & 2-8 which only adds power flow to the previous topic list

Lecture 4: (Pulses on Transmission Lines) Ulaby – Chapter 2, section 2-11 on Transients. Connor & Salon – Unit 12.

Studio Session 3: None

Lecture 5: (Lossy Transmission Lines) Ulaby – no reading. Connor & Salon – Unit 13, pages 17-27.

Lecture 6: (Transmission Line Matching and Smith Charts) Ulaby – Chapter 2, sections 2-9 & 2-10 for Smith Charts and Matching.

Studio Session 4: Project 1

Lecture 7: (Vector Math) Ulaby, 3-1, 3-2, 3-3, Inside back cover. Connor and Salon, I-1 to I-14

Quiz 1:

Studio Session 5: Project 1

Lecture 8: (Vector Math) Ulaby, 3-4, 3-5. Connor and Salon, II-26 to II-34, II-39 to II-44

Reading

Lecture 9: (Intro to Electrostatics, Gauss' Law) Ulaby, 4-1, 4-2, 4-3, 4-4. Connor and Salon, I-16 to I-29 and II-1 to II-10

Lecture 10: (Electric Potential, Voltage, Electric Materials) Ulaby, 4-5, 4-7, 4-8, 4-9. Connor and Salon, II-10 to II-26, III-1 to III-30 and IV-1 to IV-6

Lecture 11: (Electric Materials, Capacitance and Energy) Ulaby, 4-10, 4-11. Connor and Salon, IV-6 to IV-30.

Studio Session 6: None

Lecture 12: (Laplace and Poisson's Equations) Ulaby 4-5.5. Connor and Salon II-35 → II-39, V-1 to V-7 and V-27 to V-33

Lecture 13: TBA

Studio Session 7: None

Lecture 14: (Currents and Resistance) Ulaby 4-7, 7-4. Connor and Salon III-4, VIII-4,5.

Spring Break

Lecture 15: (Intro to Magnetic Fields, Ampere's Law, Flux and Magnetic Vector Potential) Ulaby 5-1, 2, 4, 5. Connor and Salon VI-1 to VI-17, VII-19 to VII-21.

Studio Session 8: None

Lecture 16: (Faraday's Law, Inductance) Ulaby 6-1, 2, 4, 6, 5-8. Connor and Salon VIII-1 to VIII-3, VII-19 to VII-25, VIII-12 to VIII-14.

Quiz 2: None

Studio Session 9: TBA

Lecture 17: (Magnetic Materials, Magnetic Circuits) Ulaby 5-6, 5-7, 6-3, 6-5. Connor and Salon VII-7 to VII-19, Appendix 6.

Lecture 18: (Magnetic Force and Energy) Ulaby 5-9. Connor and Salon VIII-6 to VIII-12, VIII-15 to VIII-20.

Studio Session 10: None

Lecture 19: (Maxwell's Equations) Ulaby 6-7, 6-8

Reading

Lecture 20: (Waves in Lossless Media) Ulaby 7-1, 7-2, 7-7.1. Connor & Salon Unit IX.

Studio Session 11:

Lecture 21: (Waves in Lossy Media) Ulaby 7-4, 7-6.2. Connor & Salon Unit IX.

Lecture 22: (Polarization) Ulaby 7-3

Studio Session 12: Project 2

Lecture 23: (Normal Incidence) Ulaby 8-1. Connor & Salon Unit 11

Quiz 3: None

Studio Session 13: Project 2

Lecture 24: (Oblique Incidence) Ulaby 8-2, 4, 5. Connor & Salon Unit 11

Lecture 25: Connor & Salon Unit 14

Studio Session 14: None