

**University of Maryland**  
**Department of Electrical and Computer Engineering**

ENEE681

Spring 2020

Tentative Schedule

Topic	Text Chapters	Lectures <sup>1</sup>
<b>Dynamic and Quasistatic Fields</b> Faraday's Law, Magnetic Energy, Self and Mutual Inductance, Maxwell's Displacement Current	14	3
<b>General Electromagnetic Fields</b> Potentials, Conservation Laws, Gauge transformations	15	2
<b>Waves in Vacuum</b> Plane Waves, Polarization, Wave Packets, Diffraction	16	2
<b>Waves in Simple Matter</b> Reflection at Discontinuities, Radiation pressure, Anisotropic matter	17	3
<b>Waves in Dispersive Matter</b> Group velocity dispersion, attenuation, Foster's theorem	18	2
<b>Guided and Confined Waves</b> Transmission lines, conducting waveguides, optical waveguides, cavities	19	3
<b>Retardation and Radiation,</b> Radiation by given current distributions, antennas, coherent/incoherent	20	3
<b>Scattering and Diffraction</b> Thomson and Rayleigh scattering	21	2
<b>Special Relativity,</b> transformations, Energy and Momentum, Charged Particle Motion in Strong Fields, Lagrangian Density	22	3
<b>Radiation from moving charges</b>	23	2

Cherenkov radiation, Bremstrahlung and Synchrotron radiation		
	Final Exam	

1 Lecture is two 50 minute periods.