

EE-135 Schedule

Week	Lectures	Topic	Reading Assignment (EE 130)	HW & Exams
1	1-2	Chapter 1 <ul style="list-style-type: none"> ▪ Electric Charge and Conservation ▪ Coulomb's Law ▪ Energy of System of Charge ▪ The Electric Field ▪ Charge Distribution 	Purcell 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8	
2	3-4	<ul style="list-style-type: none"> ▪ Flux ▪ Gauss's Law ▪ Field of Spherical, Line and Sheet Charge Distribution ▪ Energy Associated with the Electric Field 	Purcell 1.9, 1.10, 1.11, 1.12, 1.13, 1.14 1.15	HW #1
3	5-6	Chapter 2 <ul style="list-style-type: none"> ▪ Line Integral of the Electric Field ▪ Potential Difference and Function ▪ Gradient of a Scalar Function ▪ Derivation of the Field from the Potential ▪ Potential of a Charge Distribution ▪ Uniformly Charged Disk 	Purcell 2.1,2.2, 2.3, 2.4, 2.5, 2.6	
4	7-8	<ul style="list-style-type: none"> ▪ Divergence of a Vector Function ▪ Differential form of Gauss's Theorem ▪ The Divergence in Cartesian Coordinates ▪ The Divergence in Spherical Coordinates ▪ The Laplacian ▪ Laplace's Equation 	Purcell 2.8,2.9, 2.10, 2.11, 2.12	HW #2

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5	9-10	Chapter 3 <ul style="list-style-type: none"> ▪ Conductors and Insulators ▪ Conductors in the Electrostatic Field ▪ Image Charges ▪ Capacitors and Capacitances ▪ Potential and Charges on Several Conductors ▪ Energy Stored in a Capacitor ▪ Boundary-Value Problem 	Purcell 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8	HW#3
6	11-12	Chapter 10 <ul style="list-style-type: none"> ▪ Dipoles ▪ Dielectrics and Molecular View of Dielectrics ▪ Potential and Electric Field of a Dipole ▪ The Torque and Force on a Dipole in External Field ▪ Polar and Non-Polar Dielectrics ▪ Microscopic View of the Dielectric ▪ Electric Field of Polarized Material ▪ Dipolar Moment and Dielectric Constant ▪ Linear Dielectric and Capacitors ▪ Uniformly Charged Dielectric Sphere in a Uniform Field 	Purcell 2.7, 10.1, 10.2, 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9, 10.10, 10.11, 10.12, 10.13, 10.14	MIDTERM
7	13-14	Chapter 4 <ul style="list-style-type: none"> ▪ Electric Current and Current Density ▪ Steady Currents and Charge Conservation ▪ Divergence of Current Density Chapter 5 <ul style="list-style-type: none"> ▪ Lorentz Force, Special Relativity and Definition of Magnetic Field ▪ Magnetic Forces, Velocity Selector, Mass Spectrometer ▪ Current Carrying Wires and Magnetic Forces ▪ Ampere's Law ▪ Coaxial Cable, Toroidal Coil, Solenoid 	Purcell 4.1, 4.2, 5.1, 5.2, 5.9, 6.1, 6.2	HW#4

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7	15-16	<ul style="list-style-type: none"> ▪ Biot-Savart Law ▪ Infinite Wire ,Circular Ring ▪ Curl of a Vector and Stoke's Theorem ▪ Curl of Magnetic Field ▪ Vector Potential 	Purcell 6.4, 6.5, 6.6, 2.14, 2.15, 2.16, 2.17, 6.3	HW #4
8	17-18	<p>Chapter 7</p> <ul style="list-style-type: none"> ▪ Faraday's Discovery ▪ A Rod Moving ina Magnetic Field ▪ A Wire Loop Moving in A Magnetic Field ▪ Electromotive Force ▪ Universal Law of Induction ▪ Faraday's and Lenz's Law ▪ Mutual Induction ▪ Self Induction ▪ Energy Stored in Magnetic Field 	Purcell 7.1, 7.2, 7.3, 7.4, 7.5 7.6	HW #5
9	19-20	<p>Chapter 9</p> <ul style="list-style-type: none"> ▪ Displacement Current ▪ Maxwell's Equations ▪ Electromagnetic Waves ▪ Superposition of Waves ▪ Poynting's Theorem ▪ Dipole Antenna Radiation 	Purcell 9.1,9.2, 9.3, 9.4, 9.5, 9.6	
10		FINAL EXAM		