Fall 2021 – PHYSICS 333 – R.Sonnenfeld

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SCHEDULE – (Rev. B– 9/17/2021)

Wk	Date	Class Topic	Reading Asst.	HW Asst.
1	8/16/20	[1] Maxwell Eqn's / Coulomb's Law		
	8/18	[2] "Funny" r, Coulomb example	[R1] Advert, Ch. 1.1.2, 1.1.4	
	8/20	[3]Gauss Law (Integral)	[R2] Ch. 2.1.1–2.1.3	
2	8/23/20	[4] Coulomb Law $\rightarrow$ Gauss Law	[R3] Ch. 2.1.4	HW01 due
	8/25	[5] Q&A on reading	[R4] Ch. 2.2.1, 2.2.3	
	8/27	[6] E-field of ring and disk		
3	8/30	[7] $\int \vec{E} \cdot d\vec{l}$ is path indep.	[R5] 1.2.3 – 1.2.5	
	9/01	[8] r, R, r', and funny r	[R6] 1.3.1 – 1.3.4	HW02 due
	9/03	[9] Potential of a finite line charge	[R7] 1.3.5, 2.2.4, 2.3.1	
4	9/06	LABOR DAY NO CLASS		
	9/08	[10] Viz. of curl/div., Gauss inside cyl.		HW03 due
	9/10	[11] Divergence Th'm Example	[R8] Purcell div. thm	
5	9/13	[12] Line integral example	[R9] 2.3.2, 2.3.3	
	9/15	[13] $\nabla \times \vec{E} = 0 \rightarrow$ Conservative field	[R10] 2.3.5	HW04 due
	9/17	[14] $\nabla \cdot \vec{E} = \rho/\epsilon_0$, Capacitance	[R11] 2.5	
6	9/20	[15] Uniqueness, properties of $\nabla^2 V = 0$		
	9/22	[16] Method of Images		HW05 due
	9/24	[17] Relaxation method	[R12] 3.1–3.2	
7	09/27	[18] Test 1 (HW. 1–4)		
	09/29	[19] Sep. of Variables (cartesian)	[R13] 3.3.1	
	10/01	[20] Sep. of Variables (spherical)	[R14] 3.3.2	
8	10/04	[21] Multipole Expansion	[R15] 3.4	
	10/06	[22] Quadropole Moment		HW06 due
	10/08	[23] Polarization	APS4CS [R16] 4.1–4.2	
9	10/11	[23] $\vec{D}$		
	10/13	[24] Linear dielectrics	[R17] 4.3–4.4.1	HW07 due
	10/15	NO CLASS	49ers	
10	10/18	[25] Linear dielectrics	[R18] 5.1	
	10/20	[26] Magnetic Field		HW08 due
	10/22	[27] Ampere's Law	[R19] 5.3	

Wk	Date	Class Topic	Reading Asst.	HW Asst.
11	10/25	Biot-Savart Law	[R20] 5.2	
	10/27	[28] Vector Potential		HW09 due
	10/29	[29] $\vec{H}$	[R21] 6.1–6.2	
12	11/01	[30] Mag. Susceptability	[R22] Ch. 6.3	
	11/03	[31] Ferromagnetism	[R23] 6.4	HW10 due
	11/05	[32] Drude Model	[R24] 7.1.3, 7.2.1	
13	11/08	[33] Motional EMF	[R25] 7.1.1, 7.1.2	
	11/10	[34] Faraday's Law		HW11 due
	11/12			[R26] 7.2
14	11/15	[35] Induction	[R27] 7.3	
	11/17	[36] Inductance		
	11/19	Inductance		
15	11/22	[37] Maxwell's Equations		
	11/24	[38] Maxwell's Equations		HW12 due
	11/26	THANKSGIVING		
16	11/29	[39] Maxwell's Equations		
	12/1	[40] Maxwell's Equations		
	12/3	SLACK		
17	tba	FINAL EXAM (1–7)		