TISHK INTERNATIONAL UNIVERSITY FACULTY OF EDUCATION Department of PHYSICS EDUCATION, 2022-2023 Spring Course Information for PHYS 226 ELECTRICITY AND MAGNETISM II

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ום	Code	F	Regular Ser	nester	Theoretical	Practical	Credits	ECTS		
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N	lame of I	Lecturer(s):	Azeez Abd	ullah Azeez						
	Teaching	g Assistant:	Ms. Payam	n Najmadden						
	Course	Language:	English							
	Co	ourse Type:	· ·							
	0	ffice Hours	Tuesday-Tl	hursday by app	ointment					
	Cor	ntact Email:	azeez.abdu	ullah@tiu.edu.io	9					
			Tol:075045	42010						
			Tel:07504542010 B.Sc in Physics Salahaddin University-Erbil 1998 M.Sc in Superconductivity Salahaddin University-Erbil 2004 Ph.D in Materials Science Leicester University, Leicester,UK 2014							
	Course	Objectives:	Calculate e comes to a Ohm's law power in el Describe se Understanc including lił (EMF). Und parallel. An rules). Und circuit. Ana current and the capacit current and Explain phe signals in ti what situati horseshoe magnetic fi a straight li spectromet lines aroun magnetic fi	electric current, junction in a ci to design circu ectric circuits (l everal ways that d how supercor ke power transi derstand how b lalyze multi-loo erstand how to lyze circuits that d capacitor chai ive time consta d capacitor chai ive time consta d capacitor chai enomena such he body, the co ions can create magnet, Earth, eld Know in wh ne. Calculate th s of this chapte evers, EKG mach d a wire and th eld at a point d special symme	Understand in which current density, drift ircuit. Define resistar its. Calculate resista ooth electrical energ at power losses can iductivity is related to mission, magnetic le atteries work. Calcu p circuits using the ju use an ammeter, vo at include both a resi rge for a charging/di rge as a function of ta as an electric eel do rrect way to wire a h e amagnetic field. Di etc. Calculate the for ich situations the ch ne force on a current r's theory including: nines, electric motors rough a solenoid. Us ue to: infinite straigh try, use Ampère's La	velocity. Know what nee (R) and know hance (R) and know hance from resistivity y transfer and ener be minimized in ele o resistivity & explaid vitation, MRI, etc. I late R equivalent for unction rule and the oltmeter, ohmmeter istor and capacitor scharging RC circu lischarging RC circu lischarging RC circu ine for a charging/ es not cook itself w iouse, etc. Define na aw magnetic field I orce felt by a charg arged particle's mo- carrying wire in a discovery of the ele s, cathode ray tube se the Biot-Savart I t wire, circle of wire	at happens wh ow it can be a (conductivity) gy lost through ctricity transm in possible ap Define electron r resistors in s e loop rule (Kir and potentior (RC circuits). (the understand uit. Draw the c discharging R while killing pre hagnetic field (ines around: b ed particle mo tion is circular magnetic field ectron's chargent s, etc. Draw m aw to calculate a, finite straigh	nen a curre litered. Use . Calculate h resistanc pilications notive forc series and chhoffs meter in a Calculate the role of graphs of C circuit. ey, electric (B). Know oar magned ving in a r, helical or . Explain e, mass nagnetic fie e the t wire, etc.		
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16 3 14-18/5		4-18/5/2023	5						
17		21-25/5/2023		ere's Law and Its App _	blications				
18	3 2	8/5-1/6/202	3 Final	Exam					
19	3	4-8/6/2023	Final	Exam					
15	5	4-0/0/2023							
1	Learning about current, resistance, and emf. Analysis of simple electric circuits using Kirchhoff's laws.								
2	Calculating the Current in a Single-Loop Circuit, Multiloop Circuits.								
3 Learning about orig			ins of the magnetic field and its calculations. solving problems related to Faraday's and Lenz laws and their applications.						
	submitted r	•							
					PROGRAM OUTCOMES n, P: Profecient, A: Advanced)				
	Program L					Cont.			
1			principles of			I			
2		•		•	ata in physics teaching physics.	Р			
3				and subject-specified wn practice as a tear	c developmental research when designing, cher.	Р			
4	-			-	ve physics problems.	Р			
5			conceptions and deal with them in classroom.						
6	Prepare phy	ysics lessor	ns with appro	opriate learning mate	erials and teaching methods.	Ρ			
7	Effectively a	assess, plar	n, teach, org	anize, and manage	physics classrooms.	Р			
8	Use approp problem-so			niques to improve s	tudents' critical thinking, creative thinking and	Р			
9	Use require	ed modern n	nethods and		ent-centered teaching by considering individual	Р			
	una outara	ral differences of students. y use a variety of teaching technologies and techniques and classroom strategies to foster							
0 10			y or teaching	g teorinologies and t	configues and classicon strategies to loster	Р			
	student lear	rning.	-		n the context of a global society.	Р			
10	student lear Communica	rning. ate effective	ly and work	collaboratively withi		Р			
10 11 12	student lear Communica Exhibit char erequisites (Reading L	rning. ate effective racter and d Course	ly and work lecision-mak	collaboratively withi	n the context of a global society. g professionalism and ethical behavior.	Р			
10 11 12 Pre	student lear Communica Exhibit char erequisites (Reading L Referent tudent's obl	rning. ate effective racter and d Course List and PH ences): ligation Att ments): Stu	ly and work lecision-mak IYS 122 Intro ending 80% idents are re	collaboratively withi king skills embodying oduction to Physics of the course is ma esponsible for mater	n the context of a global society. g professionalism and ethical behavior.				
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10 11 12 Pre (Spec	student lear Communica Exhibit char erequisites (Reading L Refer tudent's oblicial Requirer	rning. ate effective racter and d Course List and PH ences): Iligation Att ments): Stu ass Weekly W	ly and work lecision-mak IYS 122 Intro ending 80% idents are re signments. S	collaboratively withi king skills embodying oduction to Physics of the course is ma esponsible for mater Students must bring	n the context of a global society. g professionalism and ethical behavior. II ndatory. Participation in class activities is encour ials given in class. Students are responsible for their own calculators.				
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10 11 12 Pre S (Spec	student lear Communica Exhibit char erequisites (Reading L Refer tudent's obl cial Requirer	rning. ate effective racter and d Course List and PH ences): ligation Att ments): Stu ass Weekly xe Plan:	ly and work lecision-mak YS 122 Intro- ending 80% udents are re- signments. S eek Hour 1 2 2 2 3 2 4 2 5 2 6 2 6 2 7 2	collaboratively withi king skills embodying oduction to Physics of the course is ma esponsible for mater Students must bring Date 29/1-2/2/2023 5-9/2/2023 12-16/2/2023 26/2-2/3/2023 5-9/3/2023 12-16/3/2023	n the context of a global society. g professionalism and ethical behavior. II Indatory. Participation in class activities is encour ials given in class. Students are responsible for their own calculators. Topics Introduction Charging and discharging a capacitor when s AC on and off (with CRO)-1 Charging and discharging a capacitor when s AC on and off (with CRO)-2 Measuring the current in a coil when switchin and off (L)-1 Measuring the current in a coil when switchin and off (L)-2 Magnetic force due to a current-carrying wire current balance Determining the inductive reactance of a coil circuit (XL) Determining the capacitive reactance of a cal	raged. switching switching g AC on g AC on using in an AC pacitor in			
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	15	2	7-11/5/2023	Determining Resonar circuit	nce of Series con	nection LC
	16	2	14-18/5/2023	Discussion of Resona	ance	
	17	2	21-25/5/2023	Discussion of Resona	ance	
	18	2	28/5-1/6/2023	Discussion of Resona		
	19	2	4-8/6/2023	Discussion of Resona		
Course Book/Textbook:	Funda Sons, I			liday, Resnick and Walk	er, Ninth Edition,	John Wiley &
Other Course Materials/References:			cs" Serway9th edition	ר "Physics"9th-Edition Jo	hn D. Cutnell & I	Kenneth W.
Teaching Methods (Forms of Teaching):	Looturo		ctical sessions, Exer	cises, Presentation, Proj	ect, Assignments	s, , ,
or reaching):			COURSE EVALUAT			
Method				Quantit	ty Per	centage (%)
Participation				1		5
Quiz				2		2.5
Homework				5		1
Midterm Exam				1		20
Laboratory				1		10
Lab/Practical Exam(s)				1		15
Final Exam				1		40
			Total			100
Examinations: Essay Ques Matching, , , Extra Notes:	stions, M	ultiple	Choices, Short Ansv	/ers,		
	ECTS	(ALLC	DCATED BASED ON	N STUDENT) WORKLO	AD	
Activities				Quantity	Workload Hours for 1 quantity*	Total Workload
Theoretical Hours				19	3	57
Practical Hours				19	2	19
Final Exam				1	5	5
Participation				1	3	3
Quiz				2	4	8
				5	4	20
Homework				1		0
Homework Midterm Exam				4		0
				1		
Midterm Exam				1		0
Midterm Exam Laboratory						0 112
Midterm Exam Laboratory Lab/Practical Exam(s)	ad/25)					

Signature:	Signature:	Signature
Name:	Name:	Name:
Lecturer	Head of Department	Dean