Cless Format	01005102 Lecture	Subject Category Credit Type and	Compulsory (M)	1	
Department Period of Study	Mechatronics Semester 2	Student Category Classes per Week	Year 2 2		
Required Materials	KOSEN Textbook Series Phy H, Ushio et al., Morikita Publ	vsics volume 2. Heat, Ele Ishing Co., Ltd. ISBN978	ctricity and Magnetism. and Atoms. 3-4-627-15521-4		
Instructor	Suwun Suwunnarat	Natsuda Klongvessa		1	
Course Objective Electromagnetism is a branch of ph	vsics involving the study of the ele	ctromagnetic force as v	well as the combination of electric and	1	
electromagnetism: Becconcepts of elect electromagnetism: Becconcepts of elect electric fields. The exercises homework skills and understanding of the basi electromagnetism: are also covered.	is important to understand the or romagnetism including the nature rk, and presentation are designed s of the electromagnetism. Basic v	is one require a source as peration of electric charge. Cou i to help the students to rector calculus, mathema	develop and application for amplifying several static develop knowledge, problem solving atical treatments in the		
Eveluation (Rubrid) Understanding concepts of Dectromagnetism and their relation	Ideal Level of Achievement (Very Good) Demonstrates very good knowledge and focurrates in Electromagnetism Good connections among these concepts and mathematical procedures to correctly solve problems or answer questions.	Standard Level of Achievement (Good Demonstrates apod knowledge and understanding of braices Electromagnetism connections among these concepts and mathematical	Unacceptable Level of Achievement Stall Lacks the appropriate knowledge and understanding of corporate in Bestromagnetism. Weak connections among these concepts.	10	
Mathematical and graphical representation	Describe electromagtion theorems and leves with equations. Able to acclude alectromagnetic quantities Equations show applications are backed with sufficient details to describe alectromagnetic phenomena,	an collection to some problems, but may considerably may make minor errors. Describes electromaginer frequents and leves electromaginet to calculate electromaginet auantities for simple calculate calculate calculations and calculate calculate and calculations and calculate and calculate and calc	Describe electromagitim theorems and levels the fitner th, Acob Equations are influence in the fitner Equations are incomplete or absent of information	-	
Problem Solving	Provide a clear and logical programmics from primeral solve spacefills problems with different conditions. All fina numerical previews are contened as a solution of the units and calculations.	information to understand electromagnetic phenomens, but not with details, Provide a loaded provide a loaded	Provide an unclear kalcal progression or solution which is very difficult to Major eleptreic and/or other mathematical mistakes in solution.	5	
GKO As an enginear, attitude to M(1) Ability to design, propose a M(2) Ability to design, propose a Teaching Mainod	Pelationship with Las Relationship with Las act with swarmass of social r ad develop robotio/ mechatror and develop electrical and elect	ming Outcomes oles and responsibility tio externs to solve ap ronio asstems for robo	r to make a better society. sectific problems stos/ machatronic evideme		
Outline:	Students will stud Students are excepted to d and their applications to ac and	ly basic concepts and pr invelop an appreciation i ave trycical problems. So d/or in-class lab work wi re/exercise, and mini-La	rinciples of Bectromsgnetism, of the fundamental laws and principles me topics will be demonstrated in class ill be conduced, bit/demonstration		
Please Note :	All materials will be poster photo copies or files of Assignment: is requested to if not there will be score de within a week, 80 points is Electromagnetism 1's final	d on the Google classroo f all submitted material to o submit in Google class duction for tale submissi ubmission after one was exam data) and 0 point	The student is requested to keep ormune further study to oneself. soon within a week after it is assigned, ion (full score + 100 points (submission (students submission after the star 2 weeks after the final exam date).		
Course Plan Semester 2	Contents and Met	hod of Course	Goale	Role	rted k
1st week	Introduction to Electroma Electric Charges and Electro	gnetism, the Nature of statics: Coulomb's Law,	Appreciation of the relationship between electromagnetism and physics' engineering subjects. Appreciation of concepts of Coulomb's law for force between two point charges.	I-A I-A V-C	1 1 2
2nd week	Electrostatics' Coulomb's L	aw 2 and Electroscope	Appreciation of concepts of Coulomb's law, Able to cylculate electric forces for multiple point charges.	I-A I-A V-C	1 2
3rd week	Bectric Field and Bec	stric Line of Force	Appreciation of concepts electric field and electric line of force. Able to draw visual representation of electric line of force from the electric field mapping.	V-C	2
4th week	Gauss' Law and Closed S	urface. 1: Vector Field	Review of basic concepts of vector calculus in 3 dimensional spaces (3D) and surfaces, Able to define and create 2 dimentional (2D) representation of 3D vector field.	E	_
5th week	Gauss' Law and Closed Sur	faos. 2: Concept of Flux	Appreciation of concept of closed surfaces and electric flux.	V-C	2
6th week	Gauss' Law and Closed S	urface. 3: Application	Able to calculate simple derivatives and integration of functions in the standard problems of electromagnetisms, point charge and an infinite line charge.	V-C	2
7th week	Wraip-up of first he	alf of semester	Review and summarization		_
				L	_
8th week	Midterm exa	mination	Contents from week 1-7		_
Sth week	Midterm exe Return Midterm exer	mination m and Feedback	Contents from week 1-7 Review learning content of week 1-7.		
ath week 9th week 10th week	Midterm exa Return Midterm exar Gaues' Law and Closed S	mination m and Feedback kurfaces 4: Application	Contents from week 1-7 Review learning content of week 1-7 Able to calculate simple deviations standard colours of spectra press standard colours of spectra press advanced colours of sub-rol draws charged and a sub-rol draws	V-C	2
9th week	Michern exe Return Michern exer Geues' Law and Coped S Electric Potential Energy of	mination m and Feedback kurface. 4: Application nd Electric potential. 1	Contents from week 1-7 Contents from week 1-7 Review learning content of week 1-7. Able to calculate servels derivative indectorgarearises an white a been derived and the servel of the servel derived and the servel of the servel derived and the servel of the servel content of the servel of the servel servel of the servel of the servel of the servel servel of the servel of the servel of the servel servel of the servel of the servel of the servel servel of the servel of the servel of the servel of the servel servel of the servel of the servel of the servel of the servel servel of the servel of the servel of the servel of the servel servel of the servel of t	V-C	2
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