Lesson Plan

Name of the Faculty   :   Er. Monika Sharma

Discipline   :   Electronics and Communication Engineering

Semester   : 4th

Subject   :   Electromagnetic Field Theory (ECE-214A)

Lesson Plan Duration   :   15 weeks (from January, 2021 to April, 2021)

Work Load (Lecture / Practical) per week (in hours) :   Lectures-03, Practical-Nil

Week	Theory	
	Lecture Day	**Topic (including assignment / test)**
1st	1st	Review: vector analysis in all the three coordinate system
	2nd	Line, surface & volume integrals
	3rd	Gradient, divergence & curl of a vector & their physical significance
2nd	4th	Gauss Divergence theorem
	5th	Stokes theorem
	6th	Gauss law in electrostatics & its applications
3rd	7th	Uniform line, surface & volume charge distributions
	8th	Concepts of electric field & electric potentials
	9th	Electric field & potential due to a linear dipole
4th	10th	Method of images.
	11th	Assignment 1
	12th	Biot Savart's law, Amperes circuital law & its applications
5th	13th	Boundary conditions for both the electric & magnetic fields at the interface of various types of media.
	14th	Laplace, Poisson's equation & continuity equation.
	15th	Class Test-1
6th	16th	Faraday's & Lenz's laws
	17th	How Maxwell fixed Ampere's law, Maxwell's equations in differential & integral forms & their physical significance in circuit theory
	18th	Retarded potentials.

7th	19th	Plane & uniform plane waves and their properties
	20th	Waves equations in various media.
	21st	Polarisation & its types
8th	22nd	Intrinsic impedance, propagation constant.
	23rd	Reflection & refraction of uniform plane waves at the interface of conductor-
	24th	dielectric & dielectric - dielectric (both normal and oblique incidence
9th	25th	Relaxation time ,skin effect, skin depth & surface impedance
	26th	Poynting vector theorem & its physical significance
	27th	Assignment 2
10th	28th	Distributed parameters
	29th	circuit parameters
	30th	concepts of voltage & current flow on a transmission line
11th	31st	Transmission line equations
	32nd	characteristic impedance
	33rd	Reflection of transmission line
12th	34th	maxima & minima
	35th	standing wave ratio of a transmission line
	36th	Impedance matching
13th	37th	Assignment 3
	38th	Smith's chart &
	39th	its computational applications
14th	40th	Concept of Wave Guide
	41st	TE, TM and TEM modes in rectangular
	42nd	and circular wave guide
15th	43rd	Cut off and guided wave length
	44th	Assignment 4
	45th	Class Test-3

(Er. Monika Sharma)

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