

BAŞKENT ÜNİVERSİTESİ MÜHENDİSLİK FAKÜLTESİ
ELEKTRİK – ELEKTRONİK MÜHENDİSLİĞİ BÖLÜMÜ
2013–2014 AKADEMİK YILI BAHAR YARIYILI DERS İÇERİK FORMU

DERSİN KODU / ADI	EEM 424 Mikrodalga Kuramı
ÖĞRETİM ÜYESİ	Prof. Dr. S. Gökhun TANYER
HEDEF (Başarı Yüzdesi)	% 95
DERS SAATLERİ	Belirlendiğinde ilan edilecektir.
OFİS SAATLERİ	Belirlendiğinde ilan edilecektir.
DERS KİTABI	[1] D. M. Pozar (2012), Microwave Engineering, John Wiley & Sons, Inc. [2] R. E. Collin, Foundations for Microwave Engineering. [3] D. K. Cheng, Field and Wave Electromagnetics. [4] D. K. Cheng, Fundamentals of Engineering Electromagnetics.
KAYNAK / YARDIMCI KİTAPLAR	[1] N. Kampfer, A. Murk, Lecture Notes, Microwave Physics and Quasioptics: Introduction. [2] R. M. O'Donnell, 'Radar systems engineering', Radar systems Course, IEEE, 11.1.2009. [3] Prof. L. Schachter, Lecture Notes, Microwaves. [4] F. K. W. Lee, Lecture Notes, Microwave Filters. [5] S-O. Park, Lecture Notes, Microwave Engineering.

NOTLANDIRMA:

<i>Katılım & Devam</i>	<i>Quiz</i>	<i>Ödev</i>	<i>Proje</i>	<i>Laboratuvar</i>	<i>Arasınay</i>	<i>Yarıyıl Sonu Sınavı</i>	<i>Toplam</i>
% 0	% 25	% 10	–	–	% 35	% 30	% 100

<i>HAFTA</i>	<i>KONULAR</i>
1	EM I, II, Vector algebra, Operators, Coordinate systems Differential equations for wave analysis Normal and oblique incidence of EM plane waves at planar boundary surfaces Total reflection, Surface waves Transmission lines, Examples
2	LECTURE: Microwave Physics and Quasioptics: Introduction by N. Kampfer, A. Murk
3	Basic TL example: Parallel – Plate Wave characteristics of infinite TL Attenuation constant, Power TL parameters of a coaxial line (Pozar) TL as circuit elements Transients on TL, Reflection diagrams, Pulse excitation
4	Smith chart, Basic Smith chart operations (Pozar) ZY Smith chart (Pozar) Lossy lines Impedance measurement with a slotted line (Pozar)
5	Smith Chart, Impedance matching, Smith Chart, Quarter-wave transformer (Pozar, Cheng) Generator and load mismatches (Pozar) Conjugate matching
6	Smith Chart, Double-stub matching
7	Waveguides General solutions for; (Pozar, Cheng) Transverse electromagnetic (TEM) waves Transverse electric (TE) and transverse magnetic (TM) waves

8	ARA SIRAV
9	Wave impedances Parallel-plate waveguide – TE waves Energy, power, attenuation
10	Parallel-plate waveguide – TM waves Rectangular waveguides – TM waves Rectangular waveguides – TE waves Attenuation Partially loaded waveguide (Pozar) Waveguide flanges (Pozar) Circular waveguides – TM and TE waves Dielectric waveguides /Dielectric slab – TM and TE waves
11	Coaxial lines Surface waves on a grounded dielectric sheet Stripline Microstrip transmission line Wave velocities and dispersion Group velocity Power capacity of TL
12	Microwave network analysis (Pozar) Impedance and equivalent V and I Impedance and admittance matrices The scattering matrix The transmission (ABCD) matrix Signal flow graphs Modal analysis Excitation of waveguides
13	Cavity resonators – Rectangular TE _{mnp} modes Quality factor of a resonator Circular cavity resonator
14	YARIYIL SONU SINAVI

Tarih: 3 Şubat, 2014

İmza:

Prof. Dr. S. Gökhan TANYER