



Marmara Üniversitesi - Mühendislik Fakültesi

DERS ZİLEME PROGRAMI

2020-2021 Güz Yarıyılı

Ders Kodu	Ders Adı	Ders Türü	Haftalık Ders Saati		Kredi	ECTS	Kampüs / Haftalık Gün ve Saati / Derslik
			T	U			
MATH2055.1	Differential Equations	Ders	3	0	4,00	4,00	--
Onko ul Dersi			Onko ullu Dersi		CSE3048 - Introduction to Signals and Systems / Mühendislik Fakültesi / Bilgisayar Mühendisli i (nglizce) / Lisans		
					BIOE2062 - Mathematical Applications in Bioengineering Systems / Mühendislik Fakültesi / Blyomühendislik (nglizce) / Lisans		
					KMM3052 - Matematiksel Mdelleme / Mühendislik Fakültesi / Kimya		
Dersin Tanımı	Definition and classiffication of differential equations. Initial-Value and Boundary-Value Problems. First order differential equations - Exact differential equations. Integrated factors. First order differential equations - Separable and homogeneous equations. First order differential equations - Linear and Bernoulli equations. Applications of first order differential equations. Second and higher order differential equations - Homogeneous linear equations. Second and higher order differential equations - Homogeneous Equations. Indeterminate coefficients method. Second and higher order differential equations - Change of parameters. Cauchy-Euler equation. Laplace Transform. Inverse transformation. Laplace Transform. Inverse Transform. Convolution. Laplace Transform. Solution of linear differential equations. Linear differential equation systems. Differential operators. Systems of linear differential equations in normal form. Matrices and vectors. Series solutions of linear differential equations. Power series solutions.						
Dersin Kitabı ve/veya Kaynaklar	Fundamentals of Differential Equations, 9th Edition R. Kent Nagle, Edward B. Saff, Arthur David Snider, Pearson 2019 Elementary Differential Equations and Boundary Value Theorems, by W. Boyce and R. C. DiPrima, Wiley 2008. Introduction to Ordinary Differential Equations (4th Edition), by S.L. Ross, Wiley 1989. Differential Equations, by S.L. Ross, Wiley 1984.						
Açıklamalar							
HAFTA	Konular						Kaynak No - İlgili Bölüm
1. Hafta	Introduction (Classification of Differential Equations)						
2. Hafta	Differential Equations and Their Solutions ,Initial and Boundary Conditions						
3. Hafta	First-Order Equations (Separable Equations and linear equation)						
4. Hafta	First-Order Equations (Homogeneous Equations,Bernoulli Equations)						
5. Hafta	First-Order Equations (Exact and non exact equations)						
6. Hafta	Mathematical Mdels with First-Order Equations						
7. Hafta	Solution of Second, Higher-Order Linear Equations by UC Method						
8. Hafta	Mdterm Exam						
9. Hafta	Solution of Second, Higher-Order Linear Equations by Lagrange Method						
10. Hafta	Solution of Cauchy-Euler type DEs						
11. Hafta	Laplace Transform						
12. Hafta	system of differetial equations						
13. Hafta	Series solutions of linear differential equations. Power series solutions.						
14. Hafta	Final exam preparation						
De erlendirme Araçları	Ölçme Aracı	Adet	Tarih	Ba arı Notuna Katkısı (%)	Yarıyıl / Yılıçı De erlendirme Notuna Katkısı (%)	Sınav Türü	
	Yarıyıl / Yılsonu Sınavı	1	-	40	-		
	Bütünleme Sınavı (varsa)	0	-		-		
	Yarıyıl / Yılıçı De erlendirme Bilgileri						
	mid	1		30,0	50,0	Ara Sınav	
	hw	1		30,0	50,0	Ödev	