UNIVERSIDAD DE LOS ANDES - FACULTAD DE CIENCIAS - DEPARTAMENTO DE MATEMATICAS

SYLLABUS DE ECUACIONES DIFERENCIALES, MATE2301, SEGUNDO SEMESTRE DE 2008, Prof. Mikhail Armenovich MALAKHALTSEV

TEXTO GUÍA: W.E.,Boyce & R.C.DiPrima, Elementary Differential Equations and Boundary Value Problems, Eighth Edition, John Wiley & Sons,Inc. 2005

Sem		Día	No.	Lecturas	TEMAS	PROBLEMAS	REC	%
Semana 1:								
	AGO	Lu. 4	1	1.3	Classification of Differential Equations	13,14,17,19		
		Ma. 5	2	2.1	Linear Equations; Method of Integrating Factors	18,20,31,32		
		Mi. 6	3	2.2	Separable Equations	14,22,29,32		
		Ju. 7			**Festivo**			
		Vi. 8						
Semana 2:								
		Lu. 11	4	2.3	Modeling with First Order Equations	4,9,19		
		Ma. 12	5	2.4	Differences between Linear and Nonlinear Equations	21,23,27,28		
		Mi. 13	6	2.5	Autonomous Equations and Population Dynamics	1,7,15		
		Ju. 14	7	2.6	Exact Equations and Integrating Factors	7,20,29,30		
		Vi. 15						
Semana 3:							**T1**	
		Lu. 18			**Festivo**			
		Ma. 19	8	2.8(*)	The Existence and Uniqueness Theorem	13,15,17		
		Mi. 20	9	3.1	Homogeneous Equations with Constant Coeficients	11,21,27,28		
		Ju. 21	10	3.2	Fundamental Solutions of Linear Homogeneous Equations	12,14,16,22		
		Vi. 22						
Semana 4:								
		Lu. 25	11		Repaso			
		Ma. 26	12		**Parcial 1**		**P1**	**20%**
		Mi. 27	13	3.3	Linear Independence and the Wronskian	13,16,23,28		
		Ju. 28	14	3.4	Complex Roots of the Characteristic Equations	19,27,28		
		Vi. 29						
Semana 5:								
	SEP	Lu. 1	15	3.4	Complex Roots of the Characteristic Equations	34,37,38,39		
		Ma. 2	16	3.5	Repeated Roots; Reduction of Order	11,14,20		
		Mi. 3	17	3.5	Repeated Roots; Reduction of Order	22,26,34		
		Ju. 4	18	3.6	Nonhomogeneous Equations; Method of Undetermined Coefficients	15,17	**Día Estudian**	
		Vi. 5						
Semana 6:								
		Lu. 8	19	3.7	Variation of Parameters	15,28,31		
		Ma. 9	20	3.8	Mechanical and Electrical Vibrations	6,7,19		
		Mi. 10	21	3.9(*)	Forced Vibrations	5,11,15		
		Ju. 11	22	4.1	General Theory of n-th Order Linear Equations	14,17,20,21		
		Vi. 12						
Semana 7:							**T2**	
		Lu. 15	23	4.2	Homogeneous Equations with Constant Coefficients	18,39		
		Ma. 16	24	4.3	The Method of Undetermined Coefficients	9,15,18,19		
		Mi. 17	25	4.4(*)	The Method of Variation of Parameters	3,5,16		
		Ju. 18	26	5.5	Euler Equations	23,25,29		
		Vi. 19						
Semana 8:								
		Lu. 22	27		Repaso			
		Ma. 23	28		**Parcial 2**		**P2**	**20%**
		Mi. 24	29	6.1	Definition of laplace Transform	10,16,26,27		
		Ju. 25	30	6.2	Solution of Initial Value Problems	8,17,20,28,34		
		Vi. 26					**Entrega 30%**	
Semana de Trabajo Individual: Del 29 de Septiembre al 3 de Octubre								
Semana 9:								
	OCT	Lu. 6	31	6.3	Step Functions	15,22,28,30,31		
		Ma. 7	32	6.4	Differential Equations with Discontinous Forcing Functions	1,12,19		
		Mi. 8	33	6.6	The Convolution Integral	7,9,13,15,21,27,28		
		Ju. 9	34	7.3	System of Linear Algebraic Equations; Linear Independence, Eigenvalues,Eigenve	2,4,6,10,14,21,28		
		Vi. 10					**Ultimo día re**	
Semana 10:								
		Lu. 13			**Festivo**			
		Ma. 14	35	7.4	Basic Theory of System of First Order Linear Equations	4,6,7		
		Mi. 15	36	7.5	Homogeneous Linear System with Constant Coefficients	18,20		
		Ju. 16	37	7.6	Complex Eigenvalues	5,8,22		
		Vi. 17						
Semana 11:							**T3**	
		Lu. 20	38	7.7	Fundamental matrices	1,4,15		
		Ma. 21	39	7.8	Repeated Eigenvalues	11,18		
		Mi. 22	40	7.9	Nonhomogeneous Linear Systems	12		
		Ju. 23	41	10.1	Two-Point Boundary Value Problems	5,14,15,18		
		Vi. 24						
Semana 12:								
		Lu. 27	42		Repaso			
		Ma. 28	43		**Parcial 3**		**P3**	**20%**
		Mi. 29	44	10.2	Fourier Series	15,18,21		
		Ju. 30	45	10.3	The Fourier Convergence Theorem	11		
		Vi. 31						
Semana 13:								
	NOV	Lu. 3			**Festivo**			
		Ma. 4	46	10.4	Even and Odd Functions	16,23,35,36		
		Mi. 5	47	10.5	Separation of Variables; Heat Conduction in a Rod	7,23		
		Ju. 6	48	10.6	Other Heat Conduction Problems	7,20		
		Vi. 7						
Semana 14:							**T4**	
		Lu. 10	49	10.7	The Wave Equation: Vibrations of an Elastic String	21,23		
		Ma. 11	50	10.8(*)	Laplace Equation	1,4,7,10		
		Mi. 12	51	11.1(*)	Two-Point Boundary Value Problems	3,6,9,11		
		Ju. 13	52	11.2(*)	Sturm-Liouville Boundary Value Problems	1,3,5		
		Vi. 14						
Semana 15:								
		Lu. 17			**Festivo**			
		Ma. 18	53	11.2(*)	Sturm-Liouville Boundary Value Problems	8,12,14		
		Mi. 19	54	11.3(*)	Nonhomogeneous Boundary Value Problems	1,6,8,9		
		Ju. 20	55	11.3(*)	Nonhomogeneous Boundary Value Problems	10,12		
		Vi. 21						
				(*) = Optional				**60%**

Exámenes Finales: Del 24 DE Noviembre al 9 de Diciembre

Evaluación: Exámenes (EP) 60% + Examen Final (EF) 25% + Quicces y Tablero (NTQ) 15% = 100%