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

SYLLABUS DE CALCULO EN VARIABLE COMPLEJA MATE 2211 201210

TEXTO: Variable Compleja Y Aplicaciones, J.W. Brown and R.V. Churchill, 7th Ed.,2004

Sem		Día	No.	Lecturas	TEMAS	T	P	PROBLEMAS	CA	%
Sem. 1:										
	Ene Lu. 23		1	1,2,3,4	Sums, products. Basic algebraic properties. Moduli.			p4:2,10;p7:1b,8;p11:3,5	1	
	Ma. 24		2	1,2,3,4	Sums, products. Basic algebraic properties. Moduli.			p4:2,10;p7:1b,8;p11:3,5		
	Mi. 25									
	Ju. 26		3	5,6,7	Complex conjugates. Exponential form. Products and Quotiens.			p13:2,7,14,16;p21:4,5,10		
	Vi. 27		4	8,9,10	Roots of Complex numbers. Regions in the complex plane.			p28:3,6,7;p31:1,4,5		
Sem. 2:										
	Lu. 30		5	11	Functions of a complex variable.			p35:1,2,3,4,5	2	
	Ma. 31		6	12,13	Mappings. Mappings by exponential function.			p42:1,2,3,4,7,8		
	Feb Mi. 1									
	Ju. 2		7	14,15,16,17	Limits. Theorems on limits. Limits involving point at infinity. Contin			p53:3,5,11,13		
	Vi. 3		8	18,19	Derivatives. Differentiation formulas.			p59:2,3,7,8,9		
Sem. 3:										
	Lu. 6		9	20,21,22	Cauchy Riemann equations. Sufficient conditions for diff. Polar coo			p68:2,5,7,8,10		
	Ma. 7		10	20,21,22	Cauchy Riemann equations. Sufficient conditions for diff. Polar coo			p68:2,5,7,8,10		
	Mi. 8									
	Ju. 9		11	23,24	Analytic functions.			p73:1,2,6,7		
	Vi. 10		12	25	Harmonic functions			p78:1,5,6,7		
Sem. 4:										
	Lu. 13		13	26,27,28	Uniquely determined analitic func. Refletion principle. Exponential			p84:2,3;p89:7,8,12	3	
	Ma. 14		14	29,30	Logarithm func. Branches and derivatives of logarithms.			p94:3,4,9,10,11		
	Mi. 15									
	Ju. 16		15	31,32	Identities involvieng logarithms. Complex exponents.			p96:1,2,6;p99:3,4,7		
	Vi. 17		16	33,34	Trigonometric functions. Hiperbolic functions.			p103:2,9,10,11,18		
Sem. 5:										
	Lu. 20		17	35	Inverse trigonometric and hiperbolic functions.			p110:1,2,3,4,5,6		
	Ma. 21		18	36,37	Derivatives of functions w(t). Definite integrals of functions w(t).			p115:2,3,4,7	4	
	Mi. 22									
	Ju. 23		19	38	Contours.			p120:2,3,5,6		
	Vi. 24		20	39,40	Contour integrals.			p128:1,2,3,4,5,10,11		
Sem. 6:										
	Lu. 27		21	41	Upper bounds for moduli of contour integrals.			p133:1,2,3,4,5,7		
	Ma. 28		22	42,43	Antiderivatives.			p141:2,3,4,5		
	Mi. 14									
	Mar Ju. 1		23	44,45,46	Cauchy-Goursat theorem.Simply and Multiple connected domains			p153:1,2,3,4,5		
	Vi. 2		24		Cauchy-Goursat theorem. REPASO					
Sem. 7:										
	Lu. 5		25		REPASO					
	Ma. 6		26		**Primer Parcial Examen**			**Lec 1-41**		**25**
	Mi. 7									
	Ju. 8		27	47,48	Cauchy integral formula. Derivatives of analitic functions.			p162:2,4,5,6,8		
	Vi. 9		28	49,50	Liouville´s theorem.Maximum modulus principle			p171:1,2,3,5,6,8		
Sem. 8:										
	Lu. 12		29	51,52	Convergence of sequences and series.			p181:1,2,4,9	5	
	Ma. 13		30	53,54	Taylor series.			p188:2,3,4,7,9,13		
	Mi. 14									
	Ju. 15		31	55,56	Laurent series.			p198:2,3,4,5,6,8		
	Vi. 16		32	57,58	Abs.and uniform conv of power series. Continuity			p212:2,3,4,9,10,11		
Sem. 9:										
	Lu. 19				**Fiesta**					
	Ma. 20		33	59,60	Int.and Diff.of power series, Uniqueness			p212:2,3,4,9,10,11		
	Mi. 21									
	Ju. 22		34	61	Multiplication and division of power series.			p218:1,2,3,4,7		
	Vi. 23		35	62,63,64	Residues.Cauchy residue theorem. Using a single residue			p230:1,2,3,4	6	**Entre**
Sem. 10:										
	Lu. 26		35	65	The three types of siolated singular points.			p233:1,2,4		
	Ma. 27		36	66,67	Residues at poles.			p238:3,4,5,6		
	Mi. 28									
	Ju. 29		37	68,69	Zeros of analytic functions. Zeros and poles.			p245:4,5,6,7,8		
	Vi. 30		38	70,71,72	Behavior of f near isolated singular points. Evaluation of improper			p257:1,2,3,4,5,6,8,9	7	**Ultim**
SEMANA DE TRABAJO INDIVIDUAL: ABRIL 2-6										
Sem. 11:										
	Abr Lu. 9		39	73,74	Improper int. from Fourier analysis. Jordan's lemma.			p265:2,5,6,8,9,12		
	Ma. 10		40	75,76,77	Indented paths. Indentation around branch point.Int. along branch			p276:1,2,3,4,6		
	Mi. 11									
	Ju. 12		42	78	Definite integrals involving sines and cosines.			p280:1,2,3,4,5,7		
	Vi. 13		43		*REPASO*					
Sem. 12:										
	Lu. 16		43		**Segundo Parcial Examen**			**Lec 42-72**		**25**
	Ma. 17		44	79,80	Argument principle. Rouché's theorem.			p285:1,2,7,8,11		
	Mi. 18									
	Mi. 19		45	81,82	Inverse Laplace transforms.			p296:2,3,4,7,8,10,11		
	Vi. 20		46	81,82	Inverse Laplace transforms.			p296:2,3,4,7,8,10,11		
Sem. 13:										
	Lu. 23		47	83	Linear transformations.			p301:1,2,3,4,5,6	8	
	Ma. 24		48	84,85	The transformation w=1/z. Mappings by 1/z.			p305:2,4,9,11,13		
	Mi. 25									
	Ju. 26		49	86,87	Linear fractional transformations.An implicit form.			p312:1,6,7,9,11,12		
	Vi. 27		50	88	Mappings of the upper half plane.			p316:2,3,4,5,7		
Sem. 14:										
	Lu. 30		51	89	The transformation w=sin z			p322:2,3,4,5,8		
	May Ma. 1				**Fiesta**					
	Mi. 2									
	Ju. 3		52	90	Mappings by z^2 and branches of z^1/2			p328:1,2,4,5,7		
	Vi. 4		53	91	Square roots of polinomials.			p334:1,2,4,5,6		
Sem. 15:										
	Lu. 7		54	92,93	Riemann surfaces. Surfaces for related functions.			p338:5;p341:1,3,4,5		
	Mi. 8		55	94,95,96(*)	Preservation of angles.Scale factors.Local inverses.			p350:3,4,7,8,10	9	
	Mi. 9									
	Ju. 10		56	97,98,99(*)	Harmonic conjugates. Transf. of harmonic func. Transf. of bound.			p358:1,3,4,5,6		
	Vi. 11		57		REPASO					

*** = Tema Opcional**

Examen Finale: 14-28 Mayo — **Acumulativo con énfasis en Cap. 7 y 8** — **30%**

Parciales — **25%x2= 50%**

Tareas y Tablero — **20%**