

Department of Liberal Education Era University, Lucknow Course Outline Effective From: 2023-24

Name of the	B.A. / B.Sc. (LIBERAL EDUCATION)			Year/ Semester:	3	rd / 6 th	
Program							
Course	Complex	Course	MT305	Туре:	Т	heory	
Name	Analysis	Code:		T-4-1 C			
Credits	Intornal	04 50 Marks		I otal Sessions Hours:	60 Hours		
Spread	Continuous	50 Marks		End Term Exam:	50 Marks		
Spicau	Assesment:						
Type of Course	C Compulsory C Core		O Creative	O Life Skill			
Course	1. The objective of	f this cours	oduce the fundamental ide	as of the	functions of		
Objectives	complex variables and developing a clear understanding of the fundamental concepts						
-	of complex analysis such as analytic functions, complex integrals and a range of skills						
	which will allow	v students t	o work effe	ctively with the concepts.		-	
	2. Understand how	complex r	numbers pro	wide a satisfying extension	of the re	al numbers.	
	3. Learn technique	s of comple	ex analysis	that make practical probler	ns easy (e	e.g. graphical	
	rotation and scal	ling as an e	xample of c	complex multiplication);			
	4. Appreciate how	mathemati	cs is used in	n design (e.g. conformal ma	apping).		
Course Outc	comes (CO): After	the succes	sful course	e completion, learners w	ill develo	op following	
attributes:							
Course				tributos			
Cutcome			A	ltributes			
C01	Students will be able to understand the concept of analytical function and harmonic function.						
CO2	Student will be introduced to the concept of differentiability of power series and uses						
CO3	Student will have a working knowledge of differentiability for complex functions and						
	be familiar with the Cauchy-Riemann equations.						
CO4	Student will evaluate integrals along a path in the complex plane and understand the statement of Cauchy's Theorem.						
Pedagogy	Interactive, discussion-bases, student-centered, presentation.						
Internal	Mid-term Examination: 20 Marks						
Evaluation	Activity: 10 Marks						
Mode	Class test: 05 Marks						
	Online Test/Objective Test: 05 Marks						
	Assignments/Ticsentation. 05 Marks						
Session	Topic Hours Mapped					Mapped	
Details			•			CO	
Unit 1	Complex function	and their	limit, conti	nuity, differentiability.	15	CO1	
	Analytic functions	s, Cauchy	Riemann	equations, Necessary			
	and sufficient of	condition,	Harmoni	ic function, velocity			
	potential, Milne'	s Thoms	son meth	od, Cauchy integral			
	theorem, Cauchy's	integral f	ormula.				
	Activity:	1	с , · . т	1 1 .			
	Demonstrate about analytic fuction though chart.						

		Power series, uniform convergence of power series, Taylor's and Laurent series, singular point and its classifications, zeros and poles, integration and differentiation of power series, multiplication and division of power series. Activity: Draw the process to find the zeros of analytic function on chart.							15	CO2				
Unit 3		Residues, Calculation of residues, Cauchy Residue theorem, evaluation of the real definite integral: round the unit circle, evaluation of $\int_{-\infty}^{\infty} f(z) dz$ when $f(z)$ has no pole on real axis and when pole lies on real axis. Evaluation of integral involving many valued functions, rectangular contours.15CO3Activity: Assignment based on activity for Cauchy Residue theorem.15CO3								5				
Unit 4		Introductiontoconformaltransformation,bilinear15CO4transformation,Exponentialtransformation,trigonometrictransformation,trigonometrictransformation.Specialtransformation,Schwarz-Christoffeltransformation,Activity:Draw the process of bilinear transformation on chart.transformationtransformation												
	0 11		•											
CO-PC	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PSO1	PSO2	PSO3	PSO4	PSO5 P	SO6
CO1	2	1		1				1	2					1
CO2	1			1			1	1		1	2			1
				1			1	1			2	1		1
CO4	1			ion-3, Average contribution-2, Low contribution-1,									-	
CO4 Strong co	1 1 0 ntribution	<i>1-3</i> ,	Avera	ge contri	bution-2,	L	ow contribi	tion-1,	•			1	•	
CO4 Strong co Sugges	ntribution	<i>1-3</i> , adings:	Avera	ı ge contri	bution-2,	L	ow contribi	tion-1,				Ĩ		_
CO4 Strong co Sugges Text- I	1 ontribution sted Re Books	<i>1-3,</i> adings: Chaud	Avera	¹ ge contri B., (19	<i>bution-2</i> ,	L he eler	ow contribution	<i>tion-1</i> ,	plex ar	nalysis.	New	York: J	. Wiley.	
CO4 Strong co Sugges Text- I Refer	intribution sted Re Books	<i>1-3,</i> adings: Chaud 1. Nar	Avera hary, ayan,	B., (19	bution-2, 993). T. Mittal	L he eler P. K.,	ow contribution of the con	f com	plex ar	nalysis. unction	New ns of a	York: J	. Wiley. ex variab	le.
CO4 Strong co Sugges Text-1 Refer Boo	i intribution sted Re Books rence oks	adings: Chaud 1. Nar Del	Avera hary, ayan, hi: S.	B., (19 S. and Chand	993). T. Mittal	he eler P. K., ompan	nents of (2016). V Ltd.	f com	plex ar ry of f	nalysis. unction	New ns of a	York: J	. Wiley. ex variab	le.
CO4 Strong co Sugges Text- I Refer Boo	intribution sted Re Books rence	adings: Chaud 1. Nar Dell 2. Gan	Avera hary, ayan, hi: S. (neelin.	B., (19 S. and Chand , T.W.	bution-2, 993). T Mittal and Co , Comp	he eler P. K., ompan olex At	<i>ow contribu</i> nents o (2016). y Ltd. nalysis.	f com	plex ar ry of f	alysis.	New ns of a	York: J	. Wiley. ex variab	le.
CO4 Strong co Sugges Text- I Refer Boo	i i i i i i i i i i i i i i i i i i i	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V	Avera hary, ayan, hi: S. o neelin, V. Chu	B., (19 B., (19 S. and Chand , T.W.	bution-2, 993). T. Mittal and Co , Comp and J.	he eler P. K., ompan olex Ar W. Bro	ments of (2016). y Ltd. nalysis.	f com Theo	plex ar ry of f x Varia	alysis. unction	New ns of a	York: J comple	. Wiley. ex variab	le.
CO4 Strong co Sugges Text-1 Refer Boo	i omtribution sted Re Books cence oks	n-3, adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor	Avera Avera hary, ayan, hi: S. o neelin, V. Chu k McO	B., (19 B., (19 S. and Chand , T.W. urchill Graw H	993). T Mittal and Co , Comp and J. Hill, 9t	he eler P. K., ompan olex Ar W. Bro h Ed, 2	nents o (2016). y Ltd. nalysis. own: Cc	f comj Theo	plex ar ry of f x Varia	alysis. unction	New ns of a nd Ap	York: J comple	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	n-3, adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1:	Avera Avera ayan, hi: S. (neelin, V. Chu k McC :	B., (19 B., (19 S. and Chand , T.W. urchill Graw H	993). T. Mittal and Co , Comp and J. Hill, 9tl	he eler P. K., ompan blex Ar W. Bro h Ed, 2	ments or (2016). y Ltd. nalysis. own: Co	f comj Theo	plex ar ry of f x Varia	alysis. unction	New ns of a nd Ap	York: J comple	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	i i i i i i i i i i i i i i i i i i i	<i>adings:</i> Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1.	Avera Avera ayan, hi: S. o neelin, J. Chu k McC : <u>https:</u>	B., (19 B., (19 S. and Chand , T.W. urchill Graw H	993). T Mittal and Co , Comp and J. Hill, 9tl	he eler P. K., ompan blex Ar W. Bro h Ed, 2	ments of (2016). y Ltd. nalysis. own: Cc 2013.	f comj Theo omple: =t9xV	plex ar ry of f x Varia	alysis. unction ables an	New ns of a nd Ap	York: J comple	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	adings: chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2.	Avera hary, i ayan, hi: S. (neelin, /. Chu k McC : https: https:	B., (19 B., (19 S. and Chand , T.W. urchill Graw H	bution-2, bution-2, Mittal and Co , Comp and J. Hill, 9tl y.youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/	nents or (2016). y Ltd. nalysis. own: Co 013.	r=t9xV r=t9xV	plex ar ry of f x Varia V7UaZy InwZH	alysis. unction ables an wZ0 [cW6w	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	adings: chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3.	Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: https: https: https:	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw H Graw H	293). T. Mittal and Co , Comp and J. Hill, 9th youtub youtub	he eler P. K., ompan olex Ar W. Bro h Ed, 2 be.com/ be.com/	ments of (2016). y Ltd. nalysis. own: Co 2013.	<i>dion-1,</i> f comj . Theo pmple: /=t9xV /=CCN /=Asq]	plex ar ry of f x Varia V7UaZv InwZH DHj501	alysis. unction ables an wZ0 cW6w Q8	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	adings: chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2	Avera Avera ayan, hi: S. 0 neelin /. Chu k McC : https: https: https: https:	B., (19 B., (19 S. and Chand , T.W. rrchill Graw H ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. Hill, 9th youtub youtub youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/ be.com/ be.com/	nents of (2016). y Ltd. nalysis. own: Co 2013. (watch?v (watch?v (watch?v (watch?v	rition-1, f comj Theo pmple: r=t9xV r=CCM r=Asql r=fSo(plex ar ry of f x Varia V7UaZv InwZH DHj501	alysis. unction ables an wZ0 (cW6w (Q8 (Ls	New ns of a	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text- I Refer Boo	Text	adings: chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1	Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: https: https: : https: :	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw H Graw H ://www ://www	293). T. Mittal and Co , Comp and J. Hill, 9tl v.youtub v.youtub v.youtub	he eler P. K., ompan blex Ar W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/	ments or (2016). y Ltd. nalysis. own: Cc 2013. (watch?v (watch?v (watch?v (watch?v (watch?v)	r=t9xV r=t9xV r=CCN r=Asql r=fSoQ	plex ar ry of f x Varia V7UaZv InwZH DHj501 DxuVdF SI v7V	alysis. function ables an wZ0 (cW6w (Q8 (Is) A4	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	adings: chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2. 3. 4. Unit 2: 1. 2.	Avera Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: https: https: https: https: https: https: https: https: https: https: https: https:	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw H Graw H ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. Hill, 9th v.youtub v.youtub v.youtub v.youtub	he eler P. K., ompan blex Ar blex Ar W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/	ments of (2016). y Ltd. nalysis. own: Cc 2013. /watch?v /watch?v /watch?v /watch?v	<i>dion-1,</i> <i>dion-1,</i> f comj Theo omple: v=t9xV v=cCM v=cM v=cM v=fSoQ v=xls_v	plex ar ry of f x Varia <u>v7UaZv</u> <u>4nwZH</u> <u>DHj501</u> <u>0xuVdF</u> <u>5Ly7V</u> ulrJRXI	alysis. unction ables an wZ0 (cW6w (Q8) (1s) A4 DSs	New ns of a	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text- I Refer Boo	Text	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2.	Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: https: https: https: https: https:	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw I Graw I ://www ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. Hill, 9tl v.youtub v.youtub v.youtub v.youtub v.youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/ be.com/ be.com/	ments or (2016). y Ltd. nalysis. own: Cc 2013. /watch?v /watch?v /watch?v /watch?v /watch?v /watch?v	r=t9xV r=t9xV r=t9xV r=CCN r=Asql r=fSoC r=sls_r r=gUm	plex ar ry of f x Varia V7UaZv InwZH DHj501 DxuVdF 5Ly7V hlrJRXI	alysis. unction ables an wZ0 (cW6w (Q8 (1s) A4 DSs	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2. Unit 3:	Avera Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: ht	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw H Graw H ://www ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. Hill, 9th youtub youtub youtub youtub youtub youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/	ments of (2016). y Ltd. nalysis. own: Cc 2013. (watch?v (watch?v (watch?v (watch?v (watch?v)	<i>dion-1,</i> <i>dion-1,</i> f comj Theo omple: v=t9xV v=cCN v=cNv v=cNv v=svV	plex ar ry of f x Varia V7UaZv InwZH DHj501 2xuVdF 5Ly7V alrJRXI	alysis. unction ables an wZ0 (cW6w (cW6w) (Q8) (LS (LS) A4 (DS) (L4 A)	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text- I Refer Boo	Text	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2. Unit 3: 1. 2.	Avera Avera ayan, hi: S. 0 neelin /. Chu k McC : https: ht	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw H Graw H Graw H Graw W (//www ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. fill, 9tl v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/	nents o (2016). y Ltd. nalysis. own: Co 2013. (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v) (watch?v)	<i>ition-1,</i> <i>ition-1,</i> f comj Theo Theo omple: <u>v=t9xV</u> <u>v=t9xV</u> <u>v=cCN</u> <u>v=t9xV</u> <u>v=cCN</u> <u>v=sqUm</u> <u>v=xak</u> <u>v=sqUm</u>	plex ar ry of f x Varia V7UaZy /nwZH DHj501 2xuVdF 5Ly7V, JIrJRXI TNENe 2000CC	alysis. unction ables an wZ0 (cW6w Q8 (Ls A4 DSs s 2JdA 9MA	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text- I Refer Boo	Text	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2. Unit 3: 1. 2. 3.	Avera Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: ht	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw H Graw H Graw H ://www ://www ://www ://www	293). T Mittal and Co , Comp and J. Hill, 9th youtub youtub youtub youtub youtub youtub youtub youtub youtub youtub youtub youtub youtub youtub youtub	he eler P. K., ompan olex An W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/	ments of (2016). y Ltd. nalysis. own: Cc 2013. (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v))	r=t9xV r=t9xV r=CCM r=saql r=fSoQ r=gUm r=saK r=enF9 r=E76	plex ar ry of f x Varia x Varia x Varia x Varia y VJUaZv InwZH DHj501 DHJ70 DH	alysis. unction ables an wZ0 (cW6w (Q8 (Ls A4 DSs eJdA 9MA cW8	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text-1 Refer Boo	Text	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2. Unit 3: 1. 2. 3.	Avera Avera ayan, hi: S. 0 neelin, /. Chu k McC : https: https: https: https: https: https: https: https: https: https: https: https: https: https: https: https: https:	B., (19 B., (19 S. and Chand Chand , T.W. rrchill Graw H Graw H Graw H Graw W ://www ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. Till, 9tl v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/ be.com/	nents of (2016). y Ltd. nalysis. own: Cc 2013. (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v (watch?v)	<i>tion-1,</i> <i>tion-1,</i> f comj Theo omple: /=t9xV /=cCM /=enSo /=sls_: /=gUm /=xaK/ /=enF9 /=E76/	plex ar ry of f x Varia x Varia y y y y y y y y y y y y y y y y y y y	alysis. unction ables an wZ0 (cW6w Q8 (LS A4 DSs A4 DSs 2JdA 9MA (W8)	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.
CO4 Strong co Sugges Text- I Refer Boo Para	Text	adings: adings: Chaud 1. Nar Dell 2. Gan 3. R. V Yor Unit 1: 1. 2. 3. 4. Unit 2: 1. 2. Unit 3: 1. 2. 3. Unit 3: 1. 2. 3. Unit 4:	Avera Avera Avera ayan, hi: S. 0 neelin, V. Chu k McC : https: ht	B., (19 B., (19 S. and Chand Chand , T.W. urchill Graw I Graw I Graw I ://www ://www ://www ://www	bution-2, bution-2, Mittal and Co , Comp and J. Hill, 9tl v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub v.youtub	he eler P. K., ompan blex An W. Bro h Ed, 2 be.com/ be	ments of (2016). (2016). (2016). (2013). (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi (watch?vi)).	<i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-1,</i> <i>tion-</i>	plex ar ry of f x Varia x Varia x Varia x Varia y V7UaZv 4nwZH DHj501 DHj501 DxuVdF DHj501 DxuVdF 5Ly7V. hlrJRXI <u>TNENe</u> OuOC 7TaIRR	alysis. unction ables an wZ0 (CW6w Q8 (Is A4 DSs A4 DSs 9MA (W8 6644	New ns of a nd Ap	York: J	. Wiley. ex variab ns, New	le.

Recapitulation & Examination Pattern						
Internal Continuous Assesment:						
Component	Marks	Pattern				
Mid Semester	20	Section A: Contains 10 MCQs/Fill in the blanks/One Word				
		Answer/ True-False type of questions. Each question carries 0.5				
		mark.				
		Section B: Contains 07 descriptive questions out of which 05				
		questions are to be attempted. Each question carries 03 marks.				
Activity	10	Will be decided by subject teacher				
Class Test	05	Contains 05 descriptive questions. Each question carries 01				
		mark.				
Online Test/ Objective Test	05	Contains 10 multiple choice questions. Each question carries 0.5				
		mark.				
Assignment/ Presentation	05	Assignment to be made on topics and instruction given by subject				
		teacher.				
Attendance	05	As per policy				
Total Marks	50					

Course created by:

Dr. Sheeba Rizvi

Dr. Toukeer Khan

Approved by: Prof. Nadeem Ur Rahman

elman

Signature:

Signature: