

Branch Name:	B.Sc. Mathematics
Program Code:	SC104
Course Name:	Mathematics Practical
Course Code:	2SC1040506
Pre-requisite Course:	

Course Objectives:

1. To understand the Application of Normal subgroup.
2. To understand the Application of Sequences of functions.
3. To know about Applications of Exact linear differential equations.
4. To understand the Application of Graphical method in LPP.

Teaching and Examination Scheme:

Teaching Scheme (Hours per week)				Evaluation Scheme (Marks)				
Lecture (L)	Tutorial (T)	Practical (P)	Credit	Theory (Marks)		Practical (Marks)		Total (Marks)
				University Assessment	Continuous Assessment	University Assessment	Continuous Assessment	
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Subject Contents:

Sr. No	Topic	Total Hours	Weightage (%)
1	• Application of Group and Subgroup. • Application of Lagrange's theorem. • Application of Permutation, Transpositions and cycle. • Application of Normal subgroup. • Application of Isomorphism of group. • Application of Direct Product • Application of Betti Number of Group.	44	25
2	• Application of the Number system • Application of Roots and Ratio Test. • Application of Interval (circle) of convergence and radius of convergence of a power series. • Application of absolute Convergence, addition and multiplication of series. • Application of Sequences of functions. • Application of Limit of Sequences of functions. • Application of Uniform convergence and differentiation.	48	25
3	• Applications of Complimentary Function and Particular Integral for Differential Equations. • Applications of Exact linear differential equations. • Applications of Exact Non linear differential equations. • Application of Equation do not contain y directly. • Application of Equation do not contain x directly. • Application of Equation in which y appears in only two derivatives whose order differ by unity. • Application of Laplace Transforms.	50	25

	• Application of Inverse Laplace Transforms.		
	• Application of Graphical method in LPP. • Application of Simplex method in LPP. • Applications of Two phase method in LPP. • Application of Big-M / Penalty method in LPP. • Application of Laspeyre's Method for Index Number. • Application of Paasche's Method for Index Number. • Application of Dorbish and Bowley's Method for Index Number. • Application of Fisher's Method for Index Number. • Application of Marshall-Edgeworth's Method for Index Number.	50	25

Reference Books:

1. Abstract Algebra, I H Sheth, Prentice Hall of India (PHI) Publication.
2. Topics in Algebra, I N Herstein, Wiley Eastern Ltd. Advanced Calculus Vol : I & II, T M Apostol, Blaisdell.
3. Abstract Algebra, 3rd edition, Devid S. Dummit, Richard M. Foote, John Wiley & Sons Inc.
4. "Principles of Mathematical Analysis" by Walter Rudin, McGraw Hill (International Student Edition), 3rd Edition.
5. "A First Course in Mathematical Analysis" by D. Somasundaram & B. Choudhary, Narosa Publishing House.
6. Erwin Kreyszig, Advanced Engineering mathematics, By. John Wiley & Sons Inc. New York, 1999.
7. D.A. Murray, Introductory course on Differential Equations, By. Orient Longman (India), 1967.
8. A.R. Forsyth, A Treatise on Differential Equations, Macmillan and Co. Ltd., London.
9. The Laplace Transform: Theory and applications, by Joel L. Schiff.
10. Schaum's outline of Laplace Transforms, by Murray Spiegel.
11. Operations Research, by J.K. Sharma. Macmillan Publishers India Ltd.
12. Operations Research by Nita Shah, Ravi Gor and Hardik Soni, Prentice Hall of India.
13. Business Statistics-1, Sudhir Prakashan, Ahmedabad.

List of Open Source Software/learning website:

1. <https://www.youtube.com/watch?v=RnyIAJUMv6A>
2. <https://www.youtube.com/watch?v=W3yOaBJYylw>
3. https://www.youtube.com/watch?v=TA_RRvEFqHw
4. <https://www.youtube.com/watch?v=156wAYwXjfk>
5. <https://www.youtube.com/watch?v=tHqx1qxAsq4>
6. <https://www.youtube.com/watch?v=3KtUt78p9a4>
7. <https://www.youtube.com/watch?v=01ly2ZHOmNg&t=534s>
8. <https://www.youtube.com/watch?v=WE6YT6yNsYg>

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Describe Application of Group and Subgroup.	1 Remembering
CLO2	Discuss the knowledge on Application of Roots and Ratio Test.	2 Understanding
CLO3	Use Simplex Method and using it solve the example of its.	3 Applying
CLO4	Explain Index Number and using it solve the example of its.	4 Analysing, 3 Applying
CLO5	Know the Laplace Transforms to Justify the application of its.	5 Evaluating
CLO6	Create an example of Complimentary Function and Particular Integral for Differential Equations.	6 creating

Mapping of CLOs with Pos & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1	L	H		L					M				M	M		
CLO2	L	L				L			M	L			L	M		L
CLO3	L	L							L				L	L		
CLO4		M	L						M			M	L	L		
CLO5	M	L	H			L			L			M		M		L
CLO6	L	L	H						M			M	L	L		M

H: High, M: Medium, L: Low