Faculty of Science and Humanities
B.Sc. (Mathematics) (Semester - 6)
In Effect from Academic Year 2023-24

Branch Name:	B.Sc. Mathematics
Program Code:	SC104
Course Name:	Mathematics Practical
Course Code:	2SC1040606
Pre-requisite Course:	

Course Objectives:

1. To understand the Application of Ring and Subring.
2. To understand the Application of Taylor's theorem.
3. To know about the Application of Topological space.
4. To understand the Application of Hungarian Method.

Teaching and Examination Scheme:

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

Sr. No	Topic	Total Hours	Weightage (%)
1	• Application of Ring and Subring. • Application of Zero divisors and Characteristic of an Integral Ring. • Application of the equation $ax = b$ in a ring R. • Application of Polynomials. • Application of Unique factorization of Polynomials. • Application of Eisenstein Criterion for irreducibility. • Application of Roots of polynomials.	44	25
2	• Application of Limits and Continuity for a functions from a metric Space into another metric space. • Application of Discontinuity. • Application of Mean value theorem. • Application of L'Hospital rule. • Application of Taylor's theorem. • Application of Riemann Stieltje's integral. • Application of Integration of Vector Valued Functions. • Application of Riemann Integrable functions.	48	25
3	• Application of Topological space. • Application of Neighbourhoods in topological space. • Application of Hausdorff space in topological space. • Application of Closure of a subset of a topological space. • Application of Interior of a subset of topological space. • Application of Boundary of a subset of a topological space. • Application of Continuity of a function from topological space to topological space. • Application of Compact spaces in topological space.	50	25

4	• Application of North West Corner Method. • Application of Least Cost Method. • Application of Vogel's Approximation Method. • Application of MODI Method. • Application of Hungarian Method. • Application of Johnson's Algorithm for n-jobs two machine problem. • Application of Johnson's Algorithm for n-jobs three machine problem. • Application of Johnson's Algorithm for n-jobs m-machine problem. • Application of expected value with Minimax and Maximin principles. • Application of Horwich and Laplace criteria. • Application of Expected monetary value (EMV).	50	25

Reference Books:

1. I N Herstein, Topics in Algebra, Wiley Eastern Ltd.
2. N. Jacobson, Basic Algebra Vol I & II, Hindustan Publishing company
3. G.F.Simmons, *Introduction to Topology and Modern Analysis,* MacGrawHill Inc., U.S.A.
4. Principles of Mathematical Analysis, Walter Rudin, McGraw Hill (International Student Edition), 3rd Edition.
5. A First Course in Mathematical Analysis, D. Somasundaram & B. Choudhary, Narosa Publishing House.
6. Introduction to Real Analysis, S.K.Mapa, Sarat Book Distributor, Calcutta, 1996.
7. Introduction to Topology and Modern Analysis, by. "G F Symmons"., New York McGrawHill, 1963
8. General Topology by Kelly J L , NewYork, Van Nostrand 1955
9. Operations Research, by. J.K.Sharma. Macmillan Publishers India Ltd.
10. Operations Research by Nita Shah, Ravi Gor and Hardik Soni, Prentice Hall of India.
11. Business Statistics-2, Sudhir Prakashan, Ahmedabad.

List of Open Source Software/learning website:

1. https://www.youtube.com/watch?v=eyb5csJzmYg
2. https://www.youtube.com/watch?v=BJ-_8Npj1DY&t=97s
3. https://www.youtube.com/watch?v=7qjc5PHZvlU&t=3s
4. https://www.youtube.com/watch?v=Y-rlT8VW7GA
5. https://www.youtube.com/watch?v=TSFXlSHXS_4
6. https://www.youtube.com/watch?v=au2Jm0ixAxE
7. https://www.youtube.com/watch?v=HaQCc-NXLk0&t=52s
8. https://www.youtube.com/watch?v=ItOuvM2KmD4

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

CLO	Description	Bloom'sTaxonomyLevel
CLO1	**Describe** Application of Ring and Subring.	1 Remembering
CLO2	**Discuss** the knowledge on Application of Taylor's theorem.	2 Understanding
CLO3	**Use** Hausdorff space in topological space and using it **solve** the example of its.	3 Applying
CLO4	**Explain** Application of Compact spaces in topological space.	4 Analysing
CLO5	Know MODI method to **Justify** the Optimal Solutions.	5 Evaluating
CLO6	**Create** an example of Topological space.	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