**Name**:          Dr. Himali S. Mehta
**Qualification**:      M.Sc.,Ph.D. (Math.)
**Contact Address** :  Department of Mathematics,
                 Sardar Patel University,
                 Vallabh Vidyanagar-388120.

**Phone No.** :      02692-226869 Ext.210
**E-mail** :        himalimehta63@gmail.com,
                 hs_mehta@spuvvn.edu
**Affiliation** :     Sardar Patel University

## Summary of Scholastic and Research Activities

- Associated as a faculty member in the Postgraduate Department of Mathematics since 1991 and serving as anAssociate Professor. Received MSc, and Ph.D.(Mathematics) degrees from Bhavnagar University and Sardar Patel University respectively.

- I am working in Functional Analysis – Banach algebra and space of continuous functions. I have studied various decompositions associated with function algebras and function spaces. I have also studied these decompositions for tensor and slice product.  Then, we also generalized these results for Real function algebras and Real function spaces. In real case, we also introduced the concept of (i)-peak set and weak (i)-peak set. I started working on product of Banach algebras also.

- Recently, I am working in Graph Theory. I am interested in studying behavior of different matrices (e.g. Adjacency, Incident, Laplace etc.) associated with graphs. Also, I have defined different products of graphs and studied their basic parameters as Connectedness, bipartiteness, Chromatic no. etc.

- Guided Ph.D. students: 3

- Guided M. Phil. students:  13

**Five Keywords Reflecting Areas of Scholastic/Research Activities**

- Banach algebra, Space of continuous functions, Real function algebra-function space, antisymmetric decomposition, Tensor product of Function Algebras, Product of Banach Algebras.
- Graph, Cartesian – Tensor product of graphs, Adjacency- Incidence-Laplace matrix, Spectrum of graph.

## List of Publications

1. On Bishop, Šilov and antialgebraic decompositions, Indian J. pure appl. Math., 20(1) **(1989),** 1107-1114. **(Jointly with R. D. Mehta)**

2. Šilov and other decompositions for a real function algebra, Math. Today, VIII **(1990),** 1-12. (Jointly with R. D. Mehta and M. H. Vasavada).

3. Weakly prime and weakly analytic sets of tensor product of function algebras, **"Prajna"**, J. of S. P. University, 1 **(1991),** 79-81. "Prajna",  J. of S.P. University, (1991), 79 81. (Jointly with R.D.Mehta and M.H.Vasavada).

4. Bishop type decompositions for a subspace of C(X), Math. Japonica, 37(1) **(1992),** 171-177. (Jointly with R. D. Mehta and M. H. Vasavada)

5. Bishop decompositions for vector function spaces, Proc. Indian Acad. Sci. (Math. Sci.), 103(2) (1993), 159-166. (Jointly with R. D. Mehta and M. H. Vasavada)

6. Weak Bishop decomposition for a real function algebra, "Prajna", J. of S. P. University, 3 (1993), 67-70. (Jointly with R. D. Mehta and M. H. Vasavada)

7. Weakly prime sets for function spaces, Proc. Indian Acad. Sci. (Math. Sci.), 105(4) (1995), 411-415. (Jointly with R. D. Mehta)

8. A note on characterizations of C(X) among function spaces, "Prajna", J. of S. P. University, 5 (1995), 25-26. (Jointly with R. D. Mehta and M. H. Vasavada)

9. Weakly prime sets for real function algebras, Glasnik Math., 32(52) (1997), 71-79. (Jointly with R. D. Mehta)

10. Weakly analytic sets for function spaces, Proc. Indian Acad. Sci.(Math. Sci.), 107(3) (1997), 277-282. (Jointly with R. D. Mehta)

11. Bishop and Šilov decompositions for a function space and associated affine function space, Math. Today, XVIII (2000), 29-38. (Jointly with R. D. Mehta)

12. Weakly prime sets for vector function spaces, Indian J. pure appl. Math., 35(4) (2004), 471-479. (Jointly with R. D. Mehta)

13. Weak Hull in Real Function Algebras, Proc. Of the International Conf. on Topics in Functional and Numerical Analysis, (TOFNA – 2005), J. Analysis, Vol. 14 (2006), 135-142. (Jointly with R. D. Mehta)

14. Weakly prime sets of tensor and slice products of real function algebras, Math. Today, Vol. 25 (2009), 51-63. (Jointly with R. D. Mehta)

15. Weak (i)-peak sets for a real function algebra, Int. J. Math. Anal., Vol. 4(24) (2010), 1181-1188. (Jointly with R. D. Mehta)

16. P-sets and (i)-p-sets for Real Function Space, Int. J. Math. Anal., Vol. 6(41) (2012), 2033-2040. (Jointly with R. D. Mehta)

17. Incidence Spectrum of Unicyclic Graphs, Proc. of National Conf. on Recent Trends in Computer Science & Appl. And Comp. Math., (RTCSACM-2012) Dec. (2012), 234-237. (Jointly with U. P. Acharya)

18. Essential set and antisymmetric sets of Cartesian product of Function algebras, Math. Today, Vol. 29 (2013), 25-30. (Jointly with R. D. Mehta and D. R. Patel)

19. 2 - Cartesian product of special graphs, Inter. J. of Math. and Soft Computing, Vol.4, No.1 (2014), 139 - 144. (Jointly with U. P. Acharya)

20. 2 – Tensor product of graphs, Inter. J. of Math. and Scientific Computing, Vol.4, No.1 (2014), 21 - 24. (Jointly with U. P. Acharya)

21. Joint Topological Zero Divisors for a Real Banach Algrbra, Math. Today Vol. 30 (June-Dec-2014), 54-58. (Jointly with R. D. Mehta and A. N. Roghelia)

22. Generalized Cartesian Product of Graphs, Inter. J. of Math. and Scientific Computing, Vol.5, No.1 (2015), 4-7. (Jointly with U. P. Acharya)

23. Peripheral spectrum for A x B, Math. Japonica, Vol. 78, No. 2 (2015), 135-138. (Jointly with R. D. Mehta and D. R. Patel)

24. n-self-adjoint operators, Inter. J. of Math. and Scientific Computing, Vol.5, No.2 (2015), 67-69. (Jointly with D. D. Barad)

25. Connected and Distance in G $\otimes_2$ H, IOSR J. of Math. (IOSR-JM), Vol. 13, No. 1 (Jan.–Feb.2017), 1-7. (Jointly with U. P. Acharya)

26. Joint Topological divisors and non removable ideals in a commutative Real Banach Algebra, Scientific Mathematica Japonica, Vol. 80, No. 1 (2017), 35-43. (Jointly with R. D. Mehta and A. N. Roghelia)

27. Weakly analytic sets for the Cartesian product of function algebra, Proc. Of Inter. Conf. on Research & Innovations in Sci.,Eng.& Tech. (ICRISET-2017), Kalpa Pub. In Computing, Vol. 2, (2017), 130-134. (Jointly with R. D. Mehta and A. N. Roghelia)

28. Adjacency Matrix of Product of Graphs, Proc. Of Inter. Conf. on Research & Innovations in Sci.,Eng.& Tech. (ICRISET-2017), Kalpa Pub. In Computing, Vol. 2, (2017), 158-165. (Jointly with U. P. Acharya)

29. Distance Product of Graphs, Appl. & Applied Math.: An Inter. J., Vol. 13, No. 1 (June 2018), 190-198. (Jointly with U. P. Acharya)

30. Joint TZD and related results for Cartesian Product of Real Banach Algebras, J. of Emerging Technologies and Innovative Research (JETIR), Vol. 5, No. 11 (Nov.-2018), 673-676. (Jointly with R. D. Mehta and A. N. Roghelia)

31. Some applications of measures on the Cartesian product, J. of Emerging Technologies and Innovative Research (JETIR), Vol. 5, No. 11 (Nov.-2018), 721-724. (Jointly with R. D. Mehta and D. R. Patel)

32. Degree and Distance in 2-Cartesian Product of Graphs, Research & Review: Discrete Mathematical Structures (RRDMS), Vol. 5, No. 3 (2018), 11-14. (Jointly with U. P. Acharya)

33. Boundaries for the Cartesian Product of Real Function Algebras, J. of Analysis, (Aug-2019), (Jointly with R. D. Mehta and A. N. Roghelia)

34. Regularity in the Cartesian Product of Real Banach Algebras, Proc. of Conf. on Science, Tech., Eng. And Math. (cSTEAM'19), (Sept-2019), 80-83. (Jointly with R. D. Mehta and A. N. Roghelia)

35. Some Separation Properties for the Cartesian Product of Function Algebras, Proc. of Conf. on Science, Tech., Eng. And Math. (cSTEAM'19), (Sept-2019), 88-92. (Jointly with R. D. Mehta and D. R. Patel)

36. Independence Number of Generalized products of Graphs, Asian-European J. of Math., Vol. 13, No. 1 (Feb. 2020) (Jointly with U. P. Acharya)

37. Wiener Index of Tensor Product of Cycle Graph and some other Graphs, Chap. 20 in book- 'Recent Advancement in Graph Theory': Edit. By N. P. Shrimali and Nita H. Shah, Pub. CRC (2020) (Jointly with Johnson George)

38. Sets determining Real Function Algebras and their Cartesian Product, Bull. Cal. Math. Soc., Vol. 112, No. 6 (Dec. 2020), 483-494. (Jointly with R. D. Mehta and A. N. Roghelia)