

## **ACKNOWLEDGEMENT**

I would like to thank GOD. The Almighty, for His constant showers of blessings throughout my Research work to complete successfully. I would like to thank my Parents who have always given me support to complete this Research work.

The heartiest and sincere thanks are due to my Guru and Research Guide, **Dr. Indradatta. I. Pandya**, Associate Professor, Applied Mechanics & Structural Engineering Department, Faculty of Technology and Engineering, The M. S. University of Baroda, Vadodara. I feel honoured and especially blessed ever since **Dr. Indradatta. I. Pandya** accepted to guide me for my Ph.D. work. I can never forget his meticulous guidance, incessant encouragement, and constant guidance throughout this Research work. He is above all my mentor and role model for tirelessly guiding me through out every step of this Research work. It is my great privilege and honour to work and study under his guidance.

I would like to express my deepest gratitude towards **Dr. V R. PATEL**, Assistant Professor in Applied Mechanics & Structural Engineering Department, Faculty of Technology and Engineering, The M. S. University of Baroda, for giving me invaluable guidance throughout this research work.

I would like to thank **Dr J. D. Rathod**, Head of Applied Mechanics & Structural Engineering Department, Faculty of Technology and Engineering, The M. S. University of Baroda. I would like to thank **Dr B. A. Shah**. During Head ship he had always helped me to procure the material and carryout experimental work in Applied Mechanics Department.

Thanks, To my Respected teachers at every level of learning who have enabled me to reach higher levels of imbibing knowledge. They have constantly kept up my morale and helped in boosting my pace of working towards the end of my Research work. Thanks to ME students who have done dissertation under me. I am thankful to all Laboratory staff members of the department for their constant cooperation during my experimental work.

I would like to thank my family and friends who have constantly kept up my spirits while working on the current thesis. Finally, my sincere thanks to all those who have helped in achieving all my milestones at different stage of life, the current work being one of them.

I have attached with Swadhaya Activity therefore I had completed Valuable Research work.

**December 2020**

**HEMANTKUMAR K. PATEL**