**DESIGN OPTIMIZATION OF BRAKE DISC**

***Project-2 report submitted***

***By***

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# ABSTRACT

The motivation of this project is to determine the optimum dimensions of the brake disc for a four-wheeler vehicle using AUTO CAD and ANSYS softwares. These dimensions include the disc inner radius, outer radius and thickness. Structural, modal and thermal load cases for emergency braking conditions are individually considered to determine these dimensions. The optimization objective is to minimize the brake disc volume, whereas the other objectives are to minimize the stress, temperature and maximize the first natural frequency of the disc. These goals are accomplished using optimization algorithms in MATLAB and the results are correlated with the values obtained from ANSYS. Finally, system optimization is performed using MOGA by integrating all the load cases.