

CHAPTER 62

TECHNOLOGY MECHANICAL ENGINEERING

Doctoral Theses

629. PAL (Amit)
Optimization of the Vehicular Emissions of Public Transportation System of a Metro City : Some Strategies.
Supervisors : Dr. O. P. Sharma and Prof. M. K. G. Babu
Th 16905

Abstract

The present research highlights the severity of the issues related to vehicular exhaust emissions and suggests techniques for efficient planning and management of the Public Transportation System for the city of Delhi. A framework of an optimization model for solving the transportation problems of the capital city of India, has been proposed. A comprehensive experimental work has been performed on different single cylinder, twin cylinder and four cylinder Spark ignition (S.I.) and Compression Ignition (C.I) engines to assess the impact of several alternative fuels like Ethanol, Compressed Natural Gas (CNG), Liquefied Petroleum Gas (LPG) and Bio-Diesel on the vehicular exhaust emissions and to ascertain the viability of these alternative fuels for the internal combustion engines that are found to be highly encouraging and these have been used in proposing the emission modification factors for several alternative fuels and advanced engine technologies.

Contents

1. Introduction. 2. The literature survey. 3. The research methodology. 4. The profile of the transportation system of Delhi. 5. A critical analysis of the CNG as a fuel in the transportation system of Delhi. 6. Experimental investigations of emissions due to compression ignition engines. 7. Experimental investigations of emissions due to spark ignition engines. 8. Likely future scenario of the vehicular emissions based on empirical investigations. 9. Estimation of emissions and future projections. 10. Conclusions and recommendations. Bibliography and appendices.