

**PROJECT REPORT
ON**

**“PREDICTION OF AIR POLLUTANTS DISPERSION FROM A LINE
SOURCE DISPERSION MODEL USING CALINE-4 IN
CHIKMAGALUR CITY”**

**In partial fulfillment of the requirements for the
Award of the degree of**

**BACHELOR OF ENGINEERING
In
ENVIRONMENTAL ENGINEERING**

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CHIKMAGALUR-577102

2013-2014

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ABSTRACT

California Line Source Dispersion Model (CALINE4) is a Gaussian dispersion plume model that predicts how NO₂, CO and particulate matter emitted from line sources (vehicles) disperse in the environment. The concentrations of the pollutants can be calculated for duration of 1 hour or 8 hours at various locations surrounding the road. The dispersion of pollutants is dependent on various parameters such as meteorological parameters (wind speed, wind direction, temperature), topographical parameters (elevation of the study area, terrain roughness) and finally site parameters, (road geometry and number of vehicles plying on the road). The vehicles plying on M.G Road and I.G Road in Chikmagalur, India are chosen as the line source. The wind rose diagram was obtained from the WR-plot. For the month of February, the wind blows towards the north-west direction and the wind speed is between 0.5 to 3.6 m/s. For the month of March, the wind blows towards the south direction and the wind speed is greater than or equal 11.1 m/s. For the month of April, the wind blows towards the south direction and the wind speed is greater than or equal 22.1 m/s. For the month of February, March and April the NO₂ and CO concentration for one hour at all the receptors are averaged to be 4.25 ppm, 5.15 ppm and 6.55 ppm respectively. It is observed that the NO₂ levels were above the National Ambient Air Quality Standard of 3.33 ppm while the CO levels were well below the National Ambient Air Quality Standard of 0.4 ppm.