

## **PAU6J004 | AUTOMOTIVE POLLUTION AND CONTROL (4-0-0)**

### **Module I SI Engine Pollution (10Hr)**

Pollutant formation in SI Engines, mechanism of HC and CO formation in four stroke and two stroke SI engines, NO<sub>x</sub> formation in SI engines, effects of design and operating variables on emission formation, control of evaporative emission. Two stroke engine pollution.

### **Module II CI Engine Pollution (10Hr)**

Pollutant formation in CI engines, smoke and particulate emissions in CI engines, effects of design and operating variables on CI engine emissions. Noise pollution from automobiles, measurement and standards.

### **Module III Control of Emissions from SI and CI Engines (10Hr)**

Design of engine, optimum selection of operating variables for control of emissions, EGR, Thermal reactors, secondary air injection, catalytic converters, catalysts, fuel modifications, fuel cells, Two stroke engine pollution control.

### **Module IV Measurement Techniques, Emission Standards and Test Procedure (10Hr)**

NDIR, FID, Chemiluminescent analyzers, Gas Chromatograph, smoke meters, emission standards, chassis dynamometers, dilution tunnels.

Vehicle population assessment in metropolitan cities and contribution to pollution, effects on human health and environment, global warming.

### **Text books**

1 John B. Heywood Paul Degobert – Automobiles and Pollution – SAE International ISBN-1-56091-563-3, 1991.

2 Ganesan, V- “Internal Combustion Engines”- Tata McGraw-Hill Co.- 2003.