1.	Title of the course	Pollutant Formation and Control in Combustion
2.	Course number	ME606L
3.	Structure of credits	3-0-0-3
4.	Offered to	PG
5.	New course/modification to	Modification To ME6025/17
6.	To be offered by	Department of Mechanical Engineering
7.	To take effect from	July 2022
8.	Prerequisite	CoT
9.	**Course Objective(s):** To introduce concepts of combustion and pollutant formation. To establish the fundamental understanding of pollutant formation mechanisms in combustion. To analyze different emission control technologies and exhaust gas after treatment technologies used in the industry.	
10.	**Course Content:** Principles of combustion; Chemical kinetics; Chemical equilibrium; Fuels; Alternative fuels; Flammability limits; Laminar premixed flames; Laminar diffusion flames; Turbulent flames; Droplet evaporation and burning; Mechanisms of combustion generated air pollution; Measurement methods for pollutants; In-situ optical measurement methods; Emission standards across the world; Pollution formation control techniques; Exhaust gas re-circulation; Dilution methods; After treatment methods: catalytic converters, selective catalytic reduction, gas scrubbing process, lean NOx trap; Case studies on clean combustion technologies related to IC engines and gas turbines.	
11.	**Textbook(s):** 1. Pundir B P, *IC Engines: Combustion and Emissions*, 1st Edition, Narosa (2010). 2. Turns S R, *An introduction to combustion: Concepts and applications*, 3rd Edition, Mc Graw Hill (2012).	
12.	**Reference(s):** 1. Lefebvre A H and Ballal D R, *Gas Turbine Combustion: Alternative Fuels and Emissions*, 3rd Edition, CRC Press (2010).	