

# IC Engine Combustion and Performance Engineer – Foundation program

## Course details:

- Course code: CPE01
- Location: Online delivery
- Duration: 25 hours

Check [ONLINE Courses](#) on Gannet Academy for the current schedule and registration information.

## About the Course:

Engine calibration is vast and peculiar area in development of IC Engine vehicles. This takes lot of product development time and cost. The role played by a calibration engineer is very crucial in the performance delivery meeting required legislation norms within the stipulated time and cost.

Combustion and performance engineer foundation program involve 8 packages which deliver the concepts of IC Engines systems, Emissions and their formation principles and methods to avoid and reduce these emissions at Engine level and vehicle testing. This also includes the understanding of different development cycles which helps to look at ways of reduction in the development time and cost.

In this course, you will get a chance to derive Emission targets for regulations application and perform Engine modelling to create Engine calibration solutions.

calG license is provided to user for 30 days from the start of the course which helps to optimize the trade-offs easily to create Engine calibration solutions

## Topical Outline:

CPE - Foundation crash course			
S.No	Lesson	Topic	Duration (hours)
1	MEA01	IC Engine fundamentals – Architecture, Fuel system, Air system	4
2	MEA02	Emission pollutants - formation, measurement and reduction – CO, HC, NOx and PM	6
3	MEA03	Engine Testing	1
4	MEA04	Engine development cycles	1

5	MEA06	Engine calibration trade-offs – Gasoline and Diesel Engines	1
6	MEA07	Derive Engine level emission targets from Emission regulations – Diesel Engine	2
7	MEA13	Engine performance simulations overview – Diesel Engine	4
8	calG01	Engine calibration solution creation to achieve Diesel Engine Cycle NOx and Cycle PM emissions	6

## Learning Objectives:

By attending this course, you will:

- Become familiar with the Engine Layout and Configuration for Gasoline & Diesel engines
- Gain familiarization on various calibration parameters for Gasoline & Diesel engines & their impact on performance.
- Gain knowledge on how to optimize Engine performance
- Understand the effect of various operating conditions to the engine performance
- Gain familiarization on engine calibration methodologies CO control, HC control, NOx control & PM control
- learn the importance of each component, sensor and actuator of Fuel system & Air system
- gain a brief overview of emission norms and the how to create Engine level targets
- recognize the thermodynamics involved in air system and fuel system
- Empower with the concept of understanding any air and fuel system layouts of modern engines
- Empower with the new ideas

## Who Should Attend:

- Candidates working on IC Engine design and development, IC Engine calibration, Vehicle calibration, Emissions optimization, Real Drive emissions evaluation, OBD Engineers etc.
- Candidates who are willing to pursue career in IC Engines and vehicles
- Candidates who are willing to excel in IC Engine design and development domain knowledge

## Test-facilities

None

## Pre-requisites

None