This class is designed for those from corporate and individual engineers who are interested to model conventional drivetrain vehicle drivetrain for fuel economy, emissions studies and dynamic performance tests. It would include few case studies. The course includes theory, construction of models, and use of GT-DRIVE. Participants will get good amount of time for practice of software. The following topics will be covered:

- Duration - 3 days; 1 Session; 8 hrs per day
- Trainer industrial experience - Over 16 years

**Agenda:**

- Modeling vehicle drivetrain components including engine, clutch, transmissions, drive shafts, axles, tires, brakes, driver, road, vehicle, and environment
- Solver basics of 1D mechanical components
- Analysis modes of vehicle simulation - Static, kinematic, and dynamic
- Model setup - initialization, parameters sweeps, convergence, etc
- Post-processing using GT-POST
- Subassemblies - internal, external, and encryption
- Vehicle acceleration study
- Transmission (Automatic, manual, CVT)
- Driver control (automatic and manual transmission)
- Driving cycle analysis (with model based targeting controller)
- Engine start/stop
- Integration of vehicle drivetrain system with detailed engine model
- Simulate a vehicle drivetrain system with dynamic driving cycle mode and investigate the results on changing different variables
- Gear ratio optimization for fuel economy
- Gear shifting strategy generation and optimization for fuel efficiency and emissions
- Vehicle performance of a specialty vehicle (acceleration, gradability, max vehicle speed, fuel tank capacity)
- Integrated simulation with engine and other sub-systems