Course Number: 28041

Course Name: Advanced Internal Combustion Engines

Course Type: Theory	Type & Max Unit: Constant 3
Prerequisite:	Corequisite:
Level: Graduate	First Presentation:
Group: Energy Conversion	Last Edition:

Objectives:

The objective of the course is to provide a deeper understanding of the design of modern internal combustion engines as well as on advanced engine concepts and methods. Students in this course will understand the underlying principles of operation of different IC Engines and components. This course also provides knowledge on pollutant formation, control, alternate fuel, new types of internal combustion engines such as HCCI and RCCI etc.

Topics:

- History of IC engines, engine types and technologies
- Engine design and operating parameters
- First and second laws of thermodynamics, properties of working fluid
- Ideal models of engine cycles
- SI engine combustion
- CI engine combustion
- Pollutant formation and control
- Special topics

References:

1. Heywood J B, Internal Combustion Engine Fundamentals, McGraw-Hill, 1988.
2. Stone R, Introduction to internal combustion engines, 3rd edition, McMillan Publications, 1999.
3. Ferguson C R, Kirkpatrick A T, Internal combustion engines, 2nd edition, John Wiley & Sons Inc., 2001.