

Combustion (0944723)

(Course Outline)

Instructor :

Recommended Books :

- 1) Borman and Ragland, "Combustion Engineering", Int. Ed., McGrawHill., 1998
- 2) Stephen R. Turns , "An Introduction to Combustion : Concepts and Applications" 2nd Ed., McGrawHill., 2000
- 3) Glassman I., "Combustion", 3rd Ed., Academic Press, 1996
- 4) Kuo K. K., "Principles of Combustion", Wiley, 1994
- 5) Williams A. F., "Combustion Theory", 2nd Ed., Advanced Book Program, 1985
- 6) Handouts and web based materials.

Course Objectives : This course aims at enabling the student to introduce the effect of chemical equilibrium and dissociation into heat of combustion calculations. Modelling of chemical reaction rates and development of reaction mechanism. Modelling for the internal combustion engine processes. Understand the physical and chemical effects on flame speed and thickness.

Course Outline :

Chapter (1) : Introduction to Combustion and Thermochemistry.

Chapter (2) : Chemical Kinetics.

Chapter (3) : Some Important Chemical Kinetics.

Chapter (4) : Laminar Premixed flames.

Chapter (5) : Simulation of S I Engine.

Chapter (6) : Turbulent Premixed Flames.

Chapter (7) : Pollutant Emissions.

Chapter (8) : Detonation.

Assessment :

60% Sessional Marks as follows :

10% Paper Presentation

20% Homework/Project

30% Mid-Term Exam

40% Final Exam