

## ME 6163: Course Outline

Dr. Md. Zahurul Haq

Professor  
Department of Mechanical Engineering  
Bangladesh University of Engineering & Technology (BUET)  
Dhaka-1000, Bangladesh  
<http://zahurul.buet.ac.bd/>



**ME 6163: Combustion Engineering**  
<http://zahurul.buet.ac.bd/ME6163/>



## Syllabus

Fuels, Thermodynamics and Chemical Kinetics of Combustion. Flames, Gas-fired furnace combustion, Premixed charge engine combustion, Detonation of gaseous mixtures. Spray formation and droplet behaviour, Oil-fired furnace combustion, Gas turbine spray combustion, Direct injection engine combustion, Detonation of liquid-gaseous mixtures. Solid fuel combustion mechanism, Fixed-bed combustion, Suspension burning, Fluidized bed combustion.



## Tentative Lecture Plan

Topic	No. of Lectures <sup>1</sup>
Combustion Engineering Outline	1
Fuels	2
Thermodynamics & Kinetics of Combustion	5
Combustion of Gaseous & Vaporized Fuels	7
Combustion of Liquid Fuels	6
Combustion of Solid Fuels	5

<sup>1</sup>75 minutes/lecture



## Reference Books

- Borman, G. L. & Ragland, K. W., *Combustion Engineering*, McGrawHill.
- Turns, S. R., *Introduction to Combustion*, McGrawHill.
- Kuo, K. K., *Principles of Combustion*, John Wiley & Sons.
- Winterbone, D. E., *Advanced Thermodynamics for Engineers*, Butterworth-Heinemann.
- Glassman, I., *Combustion*, Academic Press.
- McAllister, S., Chen, J. & Fernandex-Pello, A.C., *Fundamentals of Combustion Processes*, Springer.
- Warnatz, J., Maas, U. and Dibble, R. W., *Combustion: Physical and Chemical Fundamentals, Modeling and Simulation, Experiments, Pollutant Formation*, Springer.

