

Pre-requisite: Nil

Introduction to various biofuels; Bioethanol: historical development as a fuel, production from lignocellulosic biomass and biotechnological aspects, engineering and bioprocess management for production, genetic manipulation of plants for production, economics, sustainable development and production; Biodiesel: composition, economics, and production processes, production from microalgae and microbes; Biohydrogen: fuel cell technologies, production by anaerobic microbial digestion and photosynthetic organisms; Microbial fuel cells; Present status and future prospects of biofuels.

Texts/ References:

1. D. M. Mousdale, *Biofuels: Biotechnology, Chemistry and Sustainable Development*, CRC Press, Boca Raton, 2008.
2. W. Institute, *Biofuels for Transport: Global Potential and Implications for Sustainable Energy and Agriculture*, Earthscan, London, 2007.
3. P. David, *Biofuels, Solar and Wind as Renewable Energy Systems*, Springer, Colorado, 2008.
4. J.D. Wall, [*Bioenergy*](#), ASM Press, Washington DC, 2008.