

**Subject: PG Elective course for Environmental Science/biological science/chemistry/Agriculture**

**Course: Biomass characterization**

### **Development Team**

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### **Module Title 38. Industrial operation of ethanol production**

#### **Module ID: IO/IOEP/38**

**Objectives:** To study the industrial level of processing the various samples of different sources and methods of pre-treatments for large scale ethanol production as well as post fermentation of ethanol production that is distillation and purification.

**Key words:** Ethanol; Bioethanol; Biomass pre-treatment; Saccharification; Fermentation;

**Prerequisites:** Bioethanol; Biomass hydrolysis/Saccharification; Fermentation; Various substrates for fermentation.

**Outcome:** At the end of the module, learners understand the various steps involved for bioethanol by using various biomass feedstocks at industrial production level.