

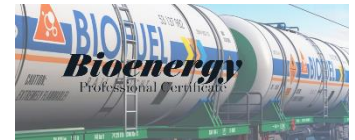
Summer 2016



Onward to Reduction of Fossil Fuels Usage

ONLINE BIOENERGY PROFESSIONAL CERTIFICATE

June 15-August 3



Register/Details at: <http://learn.uvm.edu/program/bioenergy-professional-certificate>



ONLINE Bioenergy Certificate includes SEVEN Sub-Courses:

Sub-course 1. Introduction to Biomass to Biofuels, Bioenergy Technologies and Beyond

Sub-course 2. BioPower/Bio-Electricity (anaerobic digesters; energy from dairy farm manure, municipal & industrial waste streams); Biochar

Sub-course 3. Liquid Biofuels for Transportation and Oil-heat (conversion of waste oil to biodiesel; advanced biofuels including algae-biofuel & microbial biofuel; seed-based biodiesel; bioethanol; Renewable Diesel; jet fuel; mechanical, chemical & other advanced oil extraction and refining processes)

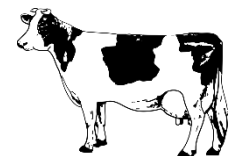
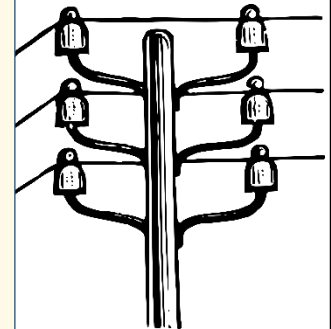
Sub-course 4. Solid Biomass to Biofuels (energy from wood & grass, lignocellulosic material, biochar, pelletization)

Sub-course 5. Gasification (pyrolysis for oil, char and gas, thermochemical pathways, Gasifiers)

Sub-course 6. Bioenergy related Economics, Environmental and Social issues

Sub-course 7. Energy Return on Investment of Bioenergy, and Entrepreneurship

Participants from Diverse Backgrounds Are Welcome



Through this certificate course explore & learn about all possible fossil fuel alternatives from bio-feedstocks

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A new era of clean BioEnergy solutions is beginning to emerge now. Clean sustainable Bioenergy such as Bio-Electricity and Biogas production from Dairy manure and Food Waste streams is becoming a well-known phenomenon. Wood/Grass biomass pellets are commercially available for heating homes, schools, businesses. Conversion of waste vegetable oil into biodiesel are successfully running vehicles. Innovations in enzymatic conversion of non-food lingo-cellulosic biomass into ethanol and other liquid fuels is underway. Emerging bioenergy technologies are moving beyond food vs. fuel options.