Center for Environmental Science and Technology

An Interdisciplinary Center for Study, Training and Applied Research
Center Concept Origins

Animal Waste

Food Waste
Center Missions

• Develop and deliver new academic program
  – Bachelor of Technology (BT) in Environmental and Energy Technologies
• Design and conduct applied research projects
  – Initial focus on gasification of wastes
• Develop and implement short-term training programs
BT in Environmental and Energy Technologies

• Interdisciplinary degree
• Rigorous science foundation
  – Chemistry, Physics, Biology, Microbiology
  – Math through Calculus
• Degree specializations
  – Renewable Energy Technologies
  – Waste Management Technologies
  – Water Resources Management
• Optional internship
BT in Environmental and Energy Technologies

• Key Features
  – Development of analytical and critical thinking skills
  – Scientific and technology-based problem solving
  – Application of scientific knowledge to sustainable management of key resources
  – Wealth of applied hands-on learning activities
  – Articulation with science-focused associate degree programs

• General Outcome
  – Solid preparation for job entry or graduate study
Renewable Energy Technologies
Sustainable Soil and Water Management
Applied Research

• Current Areas of Focus
  – Downdraft and rotary gasification of wastes to syngas
  – Anaerobic digestion and composting of wastes
  – Use of syngas as substitute for diesel fuel in vehicles
  – Evaluation of processes for conversion of syngas to liquid fuel
  – Production, management and use of bioenergy crops

• Collaboration with industry and government partners
  – Biowaste-to-bioenergy research funded by DOE and DOD
Training Programs

• Recent Programs
  – Concepts of downdraft gasification for U.S. Army
  – Conservation Boot camp for Soil and Water Conservation district employees

• General Features
  – Short term training and professional development programs
  – Designed for public officials, teachers, farmers, technicians
  – Collaborative training with industry and government partners
Research Collaboration

Training
Student Opportunities

- Gain experience in energy, waste, water technologies
- Attain blend of scientific and technical knowledge in class, lab and field settings
- Participate in internships with industry or government
- Scientific and technical discovery through applied research
- Path to opportunities in water, waste and energy professions