Renewable Energy Technology Curriculum at the Arkansas State University – Jonesboro

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A brief history

In 2009 Arkansas Delta Training and Education Consortium (ADTEC) took the initiative of creating a career pathway in Renewable Energy Technology (RET) education

CP (Certificate of Proficiency), TC (Technical Certificate), AAS (Associate of Applied Science) in RET at

- Arkansas Northeastern College, Blytheville
- Arkansas State University-Newport
- East Arkansas Community College, Forrest City
- ASU Mid-South, West Memphis
- Phillips Community College of the University of Arkansas, Helena

Bachelor of Applied Science (BAS) in Renewable Energy Technology at Arkansas State University - Jonesboro

Minor in Renewable Energy Technology

- BAS – RET was available only for students with AAS –RET
- Minor in RET opened this curriculum to all A-State Students
- Consists of 18 credit hours of upper level specialized courses focusing on various renewable energy technologies including Solar, Wind, Bioenergy, Process technology for bio-based products and energy efficiency and conservation

Minor in RET Curriculum

RET 3113, Fundamentals and Applications of Renewable Energy – This course introduces the highly relevant topic of renewable energy with detailed discussions on major alternative technologies. Includes discussions on fundamental principles related to wind, solar, hydrogen, biofuels, and other emerging alternative energy technologies along with their applications.

RET 4023, Advanced Bioenergy - Processes and developments in the biofuels area including biomass feed stocks, biomass to bioenergy conversions, biodiesel, bioethanol, bio-refineries, biological hydrogen, biogas, gasification and other emerging technologies for bio-based energy products are covered in this course.

RET 4013, Process Technology for Agricultural Products - Basic process engineering principles and applications in bio-energy and processing industries are introduced in this course. Some of the topics covered in this course include process parameters, properties of materials, transport processes, fluid flow, pumps, material handling, drying, extraction, fermentation, bio-reactor and process economics

Minor in RET Curriculum

RET 4123, Energy Conservation and Efficiency - Basic of energy and power measurement, instrumentation, techniques to analyze energy usage, and ways to minimize energy waste and conserve energy are introduced in this course. Energy efficiency and management tools for residential and industrial sectors are also examined.

RET 4313, Wind Energy Technology - Wind energy fundamentals and processes for conversion of wind energy to power are covered. Projects and problems in this course cover understanding of engineering design, operation and economics of wind power systems.

RET 4113, Advanced Renewable Energy Systems- Relevance, role and suitability of various renewable energy systems for the future and technologies for solar, hydrogen, fuel cell and transportation sectors and systems for integration of multiple renewable energy sources are discussed in this course.

RET Curriculum

Fundamentals and Application of Renewable Energy (RET 3113) course is taken by all the majors in

- **Technology program**
- **Environmental Studies program**