

# ALTERNATIVE ENERGY TECHNOLOGY

*Effective Term –Fall 2008 [2008\*03] – SBCC 09/21/07*

<b>ALT 110</b>	<b>Biofuels I</b>	3	0	3
Prerequisites:	None			
Corequisites:	None			

This course is designed to provide an introduction to the fundamentals of biobased fuels. Emphasis is placed on proper handling and use guidelines, basic chemistry of biofuels, production methods, and the social, environmental, and economic impacts of biofuels. Upon completion, students should be able to demonstrate a general understanding of biofuels.

*Effective Term –Fall 2008 [2008\*03] – SBCC 09/21/07*

<b>ALT 120</b>	<b>Renewable Energy Tech</b>	2	2	3
Prerequisites:	None			
Corequisites:	None			

This course provides an introduction to multiple technologies that allow for the production and conservation of energy from renewable sources. Topics include hydro-electric, wind power, passive and active solar energy, tidal energy, appropriate building techniques, and energy conservation methods. Upon completion, students should be able to demonstrate an understanding of renewable energy production and its impact on humans and their environment.

*Effective Term –Fall 2008 [2008\*03] – SBCC 09/21/07*

<b>ALT 210</b>	<b>Biofuels II</b>	3	2	4
Prerequisite:	ALT 110			
Corequisites:	None			

This course provides an in-depth study of commercial biofuels production and various methods for manufacturing biofuels at a large scale. Topics include advanced production technologies, feed stock selection and pretreatment, quality control, energy balance, and biofuels business models. Upon completion, students should be able to demonstrate a practical knowledge of commercial biofuels production and facility operation.

*Effective Term –Fall 2008 [2008\*03] – SBCC 09/21/07*

<b>ALT 211</b>	<b>Biofuels Analytics</b>	2	4	4
Prerequisites:	ALT 110 and (CHM 131 or CHM 151)			
Corequisites:	None			

This course is designed to address quality control management during all phases of the biofuels production process. Topics include feedstock analysis, in-process quality monitoring, and standards compliance with national and international biofuels specifications. Upon completion, students should be able to demonstrate safe and accurate laboratory practices, as well as various control techniques.

*Effective Term –Fall 2009 [2009\*03] – SBCC 04/17/09*

<b>ALT 220</b>	<b>Photovoltaic Sys Tech</b>	2	3	3
Prerequisites:	None			
Corequisites:	None			

This course introduces the concepts, tools, techniques, and materials needed to understand systems that convert solar energy into electricity with photovoltaic (pv) technologies. Topics include site analysis for system integration, building codes, and advances in photovoltaic technology. Upon completion, students should be able to demonstrate an understanding of the principles of photovoltaic technology and current applications.

*Effective Term –Fall 2009 [2009\*03] – SBCC 04/17/09*

<b>ALT 221</b>	<b>Adv PV Sys Designs</b>	2	3	3
Prerequisites:	ALT 220			
Corequisites:	None			

This course introduces specific elements in photovoltaic (pv) systems technologies including efficiency, modules, inverters, charge controllers, batteries, and system installation. Topics include National Electrical Code (NEC), electrical specifications, photovoltaic system components, array design and power integration requirements that combine to form a unified structure. Upon completion, students should be able to demonstrate an understanding of various photovoltaic designs and proper installation of NEC compliant solar electric power systems.

*Effective Term –Fall 2008 [2008\*03] – SBCC 09/21/07*

<b>ALT 230</b>	<b>Biofuels Waste Management</b>	2	0	2
Prerequisites:	ALT 110			
Corequisites:	None			

This course is designed to address the issues of sustainability and environmental stewardship involved with the production and use of biofuels. Topics include the sustainable production of feedstocks, efficient and low energy methods of fuel production, and management of biofuels sidestreams. Upon completion, students should be able to identify and mediate environmental impacts of biofuels and discuss the importance of producing biofuels using sustainable practices.

*Effective Term –Fall 2009 [2009\*03] – SBCC 04/17/09*

<b>ALT 240</b>	<b>Wind &amp; Hydro Power Sys</b>	2	2	3
Prerequisite:	None			
Corequisites:	None			

This course introduces concepts, designs, tools, techniques, and material requirements for systems that convert wind and water into usable energy. Topics include the analysis, measurement, and estimation of potential energy of wind and water systems. Upon completion, students should be able to demonstrate an understanding of the technologies associated with converting wind and water into a viable energy source.

*Effective Term –Fall 2009 [2009\*03] – SBCC 04/17/09*

**ALT 250 Thermal Systems**

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Prerequisites: None

Corequisites: None

This course introduces concepts, tools, techniques, and materials used to convert thermal energy into a viable, renewable energy resource. Topics include forced convection, heat flow and exchange, radiation, the various elements of thermal system design, regulations, and system installation and maintenance. Upon completion, students should be able to demonstrate an understanding of geothermal and solar thermal systems and corresponding regulations.

*Effective Term –Fall 2008 [2008\*03] – SBCC 09/21/07*

**ALT 281 Biofuels Project Exper**

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Prerequisites: ALT 120 and ALT 210

Corequisites: None

This course provides an opportunity to pursue an individual project in biofuels. Emphasis is placed on developing, performing, and maintaining records of a project in a specific area of interest. Upon completion, students should be able to complete the project with accurate records and demonstrate an understanding of the process.

*See the SEL and SEM prefixes for generic Selected Topics and Seminar course descriptions.*