

**Central Carolina Community College  
Program Planning Guide**

**Alternative Energy Technology  
Credential: Certificate in Biofuels Production (C20130)**

This curriculum is designed to equip students with the skills needed to attain a technical position in the biofuels industry. Students learn the fundamentals of biofuels as well as laboratory and mechanical skills needed to conduct quality control testing and diagnose biofuels related problems. Upon completion of the program students will be employable in a variety of biofuels markets, including fuel production, analysis, marketing, and distribution. In addition, students will have an opportunity to create a business plan around any aspect of the biofuels industry.

Program Length: 3 Semesters

Career Pathway Options: Associate in Applied Science in Biofuels Technology

Program Sites: Pittsboro Campus – Day Program

Required Major Core Classes (16 SHC)

ALT 110	Biofuels I	3-0-3
ALT 210	Biofuels II	3-2-4
ALT 211	Biofuels Analytics	2-4-4
BPM 110	Bioprocessing Practices	3-4-5
		11-10-16

Total Required Credit Hours for Graduation: 16

**Course Descriptions:**

**ALT 110 Biofuels I 3-0-3**

*Prerequisite: None*

*Corequisite: None*

This course is designed to provide an introduction to the fundamentals of bio-based 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.

**ALT 210 Biofuels II 3-0-3**

*Prerequisite: ALT 110*

*Corequisites: None*

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

**ALT 211 Biofuels Analytics 2-4-4**

*Prerequisite: 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 an understanding of various quality control techniques.

**BPM 110 Bioprocess Practices 3-4-5**

This course provides a study of plant operations including various plant utility systems and detailed study of the varied plant environments in a bioprocessing facility. Emphasis is placed on quality mindset and principles of validation through applications of monitoring procedures. Upon completion, students should be able to demonstrate the rigors of industry regulation and its necessity.