

## Diploma of Transfer Readiness D1040000

This diploma is issued upon the successful completion of the Associate in Science (AS) general education core. The Comprehensive Articulation Agreement (CAA) states that students completing the general education transfer core will be considered to have fulfilled the institution-wide, lower division general education requirements of the receiving institution. This diploma shall include a minimum of 44 and a maximum of 47 semester hours of general education core courses approved for transfer to The University of North Carolina constituent institutions.

Program Length: 3 semesters

Career Pathway Options: Associate in Arts or Associate in Science Degree; Baccalaureate Degree at a Senior Institution

Program Sites: Chatham Campus - Day and Selected Evening Courses; Harnett Campus - Day and Selected Evening Courses; Lee Campus - Day and Evening Programs; Distance Education

## Biological and Chemical Technologies

### Alternative Energy Technology Credential: Associate in Applied Science in Biofuels Technology A20130

This curriculum is designed to provide students with the educational foundation and technical skills necessary to obtain employment in the biofuels industry, or ability to create a new business dealing with biofuels.

Coursework includes general education, alternative energy resource management, chemistry, industrial safety, and an array of coursework specific to all sectors of the biofuels industry.

Graduates should qualify for numerous positions within the industry. Employment opportunities include, but are not limited to, plant technician plant manager, lab technician, sales manager, process coordinator, fuel purchaser, or business owner.

Program Length: 5 semesters

Career Pathway Options: Associate in Applied Science in Biofuels Technology

Program Sites: Pittsboro Campus

#### Course Requirements for Biofuels Technician Degree

A. General Education Courses (16 SHC)		C-L-SHC
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
*ENG 114	Professional Research & Reporting	3-0-3
	Humanities/Fine Arts Elective	3-0-3
**MAT 140	Survey of Mathematics	3-0-3
	Social/ Behavioral Science Elective	3-0-3
B. Required Major Core Classes (20 SHC)		
ALT 110	Biofuels I	3-0-3
ALT 120	Renewable Energy Technology	2-2-3
ALT 210	Biofuels II	3-2-4
ALT 211	Biofuels Analytics	2-4-4
ALT 230	Biofuels Waste Management	2-0-2
Chemistry (Select 4 SHC):		
CHM 131	Intro to Chemistry	3-0-3
CHM 131A	Intro to Chemistry Lab	0-2-1
CHM 151	General Chemistry I	3-3-4

\*Students may substitute ENG 113.

\*\* Students may substitute MAT 171.

C. Other Major Required Hours (32)		
CIS 110	Introduction to Computer	2-2-3
ELC 112	AC/DC Electricity	3-6-5
ISC 121	Environmental Health & Safety	3-0-3
MEC 110	Intro to CAD/CAM	1-2-2
MEC 130	Mechanisms	2-2-3

MNT 230 Pumps & Piping Systems 1-3-2

\*Students may substitute ENG 113.

\*\* Students may substitute MAT 171.

Select one of the following courses:

CHM 132 Organic and Biochemistry 3-3-4

CHM 152 General Chemistry II 3-3-4

Total Semester Hours Credit: 68

Other Required Courses: (Select 9 SHC)

AGR 139 Intro into Sustainable Agriculture 3-0-3

BPM 110 Bioprocessing Practices 3-4-5

BUS 280 REAL Small Business 4-0-4

ELC 128 Intro to PLC 2-3-3

Select 1.0 hours from the following courses:

ALT 281 Biofuels Project Experience 0-6-2

OR

COE 111 Co-op Work Experience I 0-10-1

Total Required Credit Hours for Graduation: 68

Semester Curriculum for Biofuels Technology Degree

1st Semester (Fall) C-L-SHC

ALT 110 Biofuels I 3-0-3

ALT 120 Renewable Energy Technology 2-2-3

CIS 110 Introduction to Computers 2-2-3

Chemistry Elective 4

\*\*MAT 140 Survey of Mathematics 3-0-3

10-4-16

2nd Semester (Spring)

ALT 210 Biofuels II 3-2-4

ENG 111 Expository Writing 3-0-3

ENG 111A Expository Writing Lab 0-2-1

MEC 110 Intro to CAD/CAM 1-2-2

Required Elective 3-0-3

Chemistry Elective 3-3-4

13-9-17

3rd Semester (Summer)

ALT 281 Biofuels Project Experience 0-6-2

OR

COE 111 Co-op Work Experience I 0-10-1

4th Semester (Fall)

ALT 211 Biofuels Analytics 2-4-4

ELC 112 AC/DC Electricity 3-6-5

Humanities/Fine Arts Elective 3-0-3

Required Elective 3-0-3

ISC 121 Environmental Health & Safety 3-0-3

14-10-18

5th Semester (Spring)

ALT 230 Biofuels Waste Management 2-0-2

\*ENG 114 Research and Reporting 3-0-3

MEC 130 Mechanisms 2-2-3

MNT 230 Pumps and Piping Systems 1-3-2

Required Elective 3-0-3

Social/Behavioral Science Elective 3-0-3

14-5-16