Attachment PROG 07
(REVISED 03/13/2017)

STATE BOARD OF COMMUNITY COLLEGES

CURRICULUM STANDARD REVISION

The State Board is asked to approve revisions to the following curriculum standards:

Cape Fear Community College
Chemical Technology (A20120)

Wilson Community College
Recommended Mathematics

Contact:
Ms. Jennifer Frazelle
Director

Attachment PROG 07A
(REVISED 03/13/2017)

STATE BOARD OF COMMUNITY COLLEGES
CURRICULUM STANDARD REVISION
Cape Fear Community College
Chemical Technology (A20120)

Request: The State Board of Community Colleges is asked to approve Cape Fear Community College's request to revise the Chemical Technology (A20120) curriculum standard with an effective term of Fall 2017.

Proposed Revisions:

- Remove the following courses from the required core:
  - *CTC 111 Basic Chemistry I*
  - *CTC 112 Basic Chemistry II*
  - *CTC 120 Organic Chemistry I*
  - *CTC 140 Organic Processes*
  - *CTC 220 Organic Chemistry II*
  - *CTC 230 Biochemistry*

- *Add the following courses to the core:*
  - *CTC 110 Chemical Safety & Technology*
  - *CTC 114 Wet Laboratory Techniques*
  - *CTC 115 Quality Control Laboratory*
  - *CTC 145 Advanced Laboratory Methods*
  - *CTC 150 Standards and Solutions*
  - *CTC 210 Forensic Laboratory*
  - *CTC 235 Food Chemistry*
  - *CTC 260 Chemical Technology Capstone*

The addition and deletion of courses to the core will result in a change of core hours from 44 SHC to 38 SHC for the associate degree program.

Note: The proposed curriculum standard revision includes new and revised courses, which were presented to the Curriculum Review Committee (CRC) on February 23, 2017.

Rationale: Cape Fear Community College (CFCC) is requesting the proposed changes in order to restructure their program. CFCC's recommendations for their program are to: 1) incorporate new technologies/equipment within the laboratory setting, 2) meet employer workforce needs, and 3) reduce the duplication of courses being taught in the chemistry department.

Vote Results:
Cape Fear Community College is the only college approved to offer the program.

Contact Person:
Ms. Renee Batts
Associate Director

PROPOSED CURRICULUM STANDARD

Effective Term
~~*Fall 2014*~~
Fall 2017
~~*2014*03*~~
*2017*03*

Curriculum Program Title	**Chemical Technology**	Program Code	**A20120**
Concentration	**(not applicable)**	CIP Code	***41.0301***

Curriculum Description

The Chemical Technology curriculum prepares individuals for work as analytical technicians in chemical laboratories associated with chemical production, environmental concerns, pharmaceuticals, or general analysis.

Course work includes general chemistry, organic chemistry, introductory chemical engineering, qualitative analysis, and quantitative analysis, including such instrumental techniques as spectroscopy (UV-Vis, IR, AA) and chromatography (GC, LC). Students also utilize computerized data collection, reduction, and graphic presentation.

Graduates should qualify as entry-level chemical laboratory technicians. Their duties may include chemical solution preparation; raw material, product, or environmental sampling; and/or sample testing via wet chemistry or instrumental techniques.

*Curriculum Requirements**

[for associate degree, diploma, and certificate programs in accordance with 1D SBCCC 400.97 (3)]

I. General Education. Degree programs must contain a minimum of 15 semester hours including at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics. Degree programs must contain a minimum of 6 semester hours of communications. Diploma programs must contain a minimum of 6 semester hours of general education; 3 semester hours must be in communications. General education is optional in certificate programs.

II. Major Hours. AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit. *(See second page for additional information.)*

III. Other Required Hours. A college may include courses to meet graduation or local employer requirements in a certificate, diploma, or associate in applied science program. These curriculum courses shall be selected from the Combined Course Library and must be approved by the System Office prior to implementation. Restricted, unique, or free elective courses may not be included as other required hours.

	AAS	**Diploma**	**Certificate**
Minimum General Education Hours	15	6	0
Minimum Major Hours	49	30	12
Other Required Hours	0-7	0-4	0-1
Total Semester Hours Credit (SHC)	**64-76**	**36-48**	**12-18**

**Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic use of computers.*

Proposed *Major Hours*

[ref. 1D SBCCC 400.97(3)]

A. Core. The subject/course core is comprised of subject areas and/or specific courses which are required for each curriculum program. A diploma program offered under an approved AAS program standard or a certificate which is the highest credential level awarded under an approved AAS program standard must include a minimum of 12 semester hours credit derived from the subject/course core of the AAS program.

B. Concentration *(if applicable).* A concentration of study must include a minimum of 12 semester hours credit from required subjects and/or courses. The majority of the course credit hours are unique to the concentration. The required subjects and/or courses that make up the concentration of study are in addition to the required subject/course core.

C. Other Major Hours. Other major hours must be selected from prefixes listed on the curriculum standard. A maximum of 9 semester hours of credit may be selected from any prefix listed, with the exception of prefixes listed in the core or concentration. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit.

Chemical Technology A20120

	AAS	Diploma	Certificate
Minimum Major Hours Required	**49 SHC**	**30 SHC**	**12 SHC**
A. CORE *A diploma offered under this AAS degree requires a minimum of 12 SHC extracted from the required subject/course core of the AAS degree.*	~~**44 SHC**~~ **38 SHC**	**12 SHC**	

Required Courses:

CTC 110	Chemical Safety & Technology	2 SHC
~~CTC 111~~	~~Basic Chemistry I~~	~~7 SHC~~
~~CTC 112~~	~~Basic Chemistry II~~	~~7 SHC~~
CTC 114	Wet Laboratory Techniques	5 SHC
CTC 115	Quality Control Laboratory	5 SHC
~~CTC 120~~	~~Organic Chemistry I~~	~~2 SHC~~
~~CTC 140~~	~~Organic Processes~~	~~7 SHC~~
CTC 145	Advanced Laboratory Methods	6 SHC
CTC 150	Standards & Solutions	2 SHC
CTC 210	Forensic Laboratory	2 SHC
~~CTC 220~~	~~Organic Chemistry II~~	~~6 SHC~~
~~CTC 230~~	~~Biochemistry~~	~~5 SHC~~
CTC 235	Food Chemistry	2 SHC
CTC 240	Instru I: Spectroscopy	6 SHC
CTC 250	Instru II: Chromatography	6 SHC
CTC 260	Chemical Technology Capstone	2 SHC

Required Subject Areas:
None

B. CONCENTRATION *(Not applicable)*

C. OTHER MAJOR HOURS
To be selected from the following prefixes:

BIO, CHM, CIS, CSC, CTC, CTS, HEA, ISC, MSC, PHY, SST and WBL

Up to two semester hour credits may be selected from ACA.

Up to three semester hour credits may be selected from the following prefixes: ARA, ASL, CHI, FRE, GER, ITA, JPN, LAT, POR, RUS and SPA.

Approved by the State Board of Community Colleges on November 13, 1996; Revised 06/18/99; SBCC Revised 06/15/01; SBCC Revised 05/17/02; SBCC Revised 09/21/07; CRC Revised 09/22/09; Editorial Revision 12/17/12; Editorial Revision 01/10/14; CRC Revised—05/29/14; Editorial Revision 03/16/15; Prefix Addition 08/01/15, SBCC Revised_____

STATE BOARD OF COMMUNITY COLLEGES
CURRICULUM STANDARD REVISIONS
Wilson Community College

Request: The State Board of Community Colleges is asked to approve Wilson Community College's request to revise the *recommended** general education/mathematics list for the cluster curriculum standards in the following program areas plus the Outdoor Leadership (A55330) program under the public service technologies program area:

Agricultural & Natural Resources Technologies
Biological & Chemical Technologies
Construction Technologies
Engineering Technologies
Industrial Technologies
Transport System Technologies

**Courses listed are recommended general education courses for select curriculum standards. Colleges may choose to include additional or alternative general education courses to meet local curriculum needs.*

Proposed Revisions: Add recommended math courses (list attached) to replace archived math courses in the *recommended* general education section of corresponding agricultural and natural resources, biological and chemical, construction, engineering, industrial, Outdoor Leadership (A55330) and transport systems technologies curriculum standards.

Rationale: The following math courses were archived by the Curriculum Review Committee as a result of the mathematical curriculum improvement project:

MAT 101 Applied Mathematics I
MAT 102 Applied Mathematics II
MAT 115 Mathematical Models
MAT 120 Geometry and Trigonometry
MAT 140 Survey of Mathematics
MAT 145 Analytical Math
MAT 151 Statistics I
MAT 155 Statistical Analysis
MAT 161 College Algebra
MAT 162 College trigonometry
MAT 165 Finite Mathematics
MAT 175 Precalculus
MAT 210 Logic
All MAT Lab (A) Courses

The following new MAT courses were approved by the Curriculum Review Committee as a result of the mathematical curriculum improvement project:

MAT 143 Quantitative Literacy
MAT 152 Statistical Methods I

MAT 143 was considered a replacement for MAT 140 and 115. MAT 152 was viewed as a replacement for MAT 151 and 155. The archived mathematics courses appear on various curriculum standards that utilize a *recommended* general education course category and therefore need to be updated. The suggested replacements will continue to support student engagement in math.

Vote Results:
Colleges approved to offer the program: 58
Colleges in favor of recommendations: 54
Colleges opposed to recommendations: 0
Colleges not responding: 4

Proposed r*ecommended* general education mathematics courses to be listed within the *Natural Science/Mathematics* category on *career cluster* curriculum standards* within the following program areas:

Proposed Agricultural and Natural Resources Technologies:

MAT 110 Math Measurement & Literacy	3 SHC
MAT 121 Algebra/Trigonometry I	3 SHC
MAT 143 Quantitative Literacy	3 SHC
MAT 152 Statistical Methods I	4 SHC
MAT 171 Precalculus Algebra	4 SHC

Proposed Biological and Chemical Technologies/Outdoor Leadership:

MAT 110 Math Measurement & Literacy	3 SHC
MAT 121 Algebra/Trigonometry I	3 SHC
MAT 143 Quantitative Literacy	3 SHC
MAT 152 Statistical Methods I	4 SHC

Proposed Construction Technologies:

MAT 110 Math Measurement & Literacy	3 SHC
MAT 121 Algebra/Trigonometry I	3 SHC
MAT 143 Quantitative Literacy	3 SHC
MAT 152 Statistical Methods I	4 SHC
MAT 171 Precalculus Algebra	4 SHC

Proposed Engineering Technologies:

MAT 110 Math Measurement & Literacy	3 SHC
MAT 121 Algebra/Trigonometry I	3 SHC
MAT 143 Quantitative Literacy	3 SHC
MAT 152 Statistical Methods I	4 SHC
MAT 171 Precalculus Algebra	4 SHC
MAT 223 Applied Calculus	3 SHC
MAT 271 Calculus I	4 SHC

Proposed Industrial Technologies:

MAT 110 Math Measurement & Literacy	3 SHC
MAT 121 Algebra/Trigonometry I	3 SHC
MAT 143 Quantitative Literacy	3 SHC
MAT 152 Statistical Methods I	4 SHC
MAT 171 Precalculus Algebra	4 SHC
MAT 223 Applied Calculus	3 SHC
MAT 271 Calculus I	4 SHC

Proposed Transport Systems Technologies:

MAT 110 Math Measurement & Literacy	3 SHC
MAT 121 Algebra/Trigonometry I	3 SHC
MAT 143 Quantitative Literacy	3 SHC
MAT 152 Statistical Methods I	4 SHC

The proposed revision affects thirty (30) curriculum standards. An example curriculum standard is provided to illustrate the placement of recommended natural science/mathematics within a cluster curriculum standard.

Contact Person: Dr. Frank Scuiletti – Program Coordinator

PROPOSED **Curriculum Standard for Mobile Equipment Maintenance and Repair**

Career Cluster: Transportation, Distribution and Logistics **

Cluster Description: The planning, management, and movement of people, materials, and goods by road, pipeline, air, rail and water and related professional and technical support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

Pathway: Mobile Equipment Maintenance and Repair	**Effective Term:** Spring 2017 (2017*01)

Program Majors Under Pathway

Program Major / Classification of Instruction Programs (CIP) Code		Credential Level(s) Offered	Program Major Code
Agricultural Systems Technology	CIP Code 01.0205	AAS/Diploma/Certificate	A60410
Alternative Transportation Technology	CIP Code: 47.0614	Diploma/Certificate	D60420
Automotive Customizing Technology	CIP Code 47.0603	AAS/Diploma/Certificate	A60190
Automotive Light-Duty Diesel Technology	CIP Code 47.0605	Diploma/Certificate	D60430
Automotive Restoration Technology	CIP Code 47.0603	Diploma/Certificate	D60140
Automotive Systems Technology	CIP Code 47.0604	AAS/Diploma/Certificate	A60160
Collision Repair and Refinishing Technology	CIP Code 47.0603	AAS/Diploma/Certificate	A60130
Construction Equipment Systems Technology	CIP Code 47.0302	AAS/Diploma/Certificate	A60450
Diesel and Heavy Equipment Technology	CIP Code 47.0613	AAS/Diploma/Certificate	A60460
Motorcycle Mechanics	CIP Code 47.0611	AAS/Diploma/Certificate	A60260
Recreational Vehicle Maintenance and Repair Technology	CIP Code 47.0618	Diploma/Certificate	D60310

Pathway Description:

Curriculums in the Mobile Equipment Maintenance and Repair pathway prepare individuals for employment as entry-level transportation service technicians. The program provides an introduction to transportation industry careers and increases student awareness of the diverse technologies associated with this dynamic and challenging field.

Course work may include transportation systems theory, braking systems, climate control, design parameters, drive trains, electrical/electronic systems, engine repair, engine performance, environmental regulations, materials, product finish, safety, steering/suspension, transmission/transaxles, and sustainable transportation, depending on the program major area chosen.

Graduates of this pathway should be prepared to take professional licensure exams, which correspond to certain programs of study, and to enter careers as entry-level technicians in the transportation industry.

Program Description: Choose one of the following ***4th paragraphs*** *to use in conjunction with the first three paragraphs of the pathway description above for documentation used to identify each* ***Program Major:***

Agricultural Systems Technology: A program that prepares individuals to maintain and repair specialized farm, ranch, and agribusiness power equipment and vehicles. Includes instruction in the principles of diesel, combustion, electrical, steam, hydraulic, and mechanical systems and their application to the maintenance of terrestrial and airborne crop-spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos; irrigation and pumping equipment; dairy, feeding, and shearing operations; and processing systems.

**Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic use of computers.*

Approved by the State Board of Community Colleges on August 16, 2012; Editorial Revision 09/05/12; Editorial Revision 12/14/12; Editorial Revision 08/21/13; Editorial Revision 03/11/14; Revised SBCC 04/17/15; SBCC Revised (D60310) 10/21/16; Editorial Revision 11/08/16; Editorial Revision 11/30/16; SBCC Revised ___.

Alternative Transportation Technology: A program that prepares individuals to apply technical knowledge and skills to the maintenance of alternative fuel vehicles (AFV), hybrid electric vehicles and the conversion of standard vehicles to AFV status. Includes instruction in electrical vehicles, hybrid electric vehicles, liquefied petroleum gas (LPG) vehicles, compressed natural gas (CNG) vehicles, hybrid fuel technology, electrical and electronic systems, engine performance, diagnosis and repair, and conversion/installation.

Automotive Customizing Technology: A program that prepares individuals to modify existing automotive vehicle components, fabrication techniques to create custom vehicle components, non-structural damage repair, custom painting and refinishing techniques, custom upholstery and glass removal/replacement/custom modifications, and other automotive technology related systems.

Automotive Light-Duty Diesel Technology: A program that prepares individuals to apply technical knowledge and skills to diagnose, adjust, repair, or overhaul light duty diesel vehicles under one ton classification. Includes instruction in electrical systems, diesel-electric drive, engine performance, engine repair, emission systems, and all types of diesel engines related to the light duty diesel vehicle. Includes technicians working primarily with automobile diesel engines.

Automotive Restoration Technology: A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct, finish and restore automobile bodies, fenders, and external features of a wide range of classic vehicles typically from year models 1900 - 1970. Includes instruction in internal combustion engines, transmissions, brakes, restoring original sheet metal, upholstery, and wood components, rebuilding starters, generators, and painting and refinishing techniques.

Automotive Systems Technology: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles. Includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air condition systems

Collision Repair and Refinishing Technology: A program that prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. Includes instruction in structure analysis, damage repair, non-structural analysis, mechanical and electrical components, plastics and adhesives, painting and refinishing techniques, and damage analysis and estimating.

Construction Equipment Systems Technology: A program that prepares individuals to apply technical knowledge and skills in the field maintenance and repair of construction equipment, and in the general maintenance and overhaul of such equipment. Includes instruction in inspection, maintenance, and repair of tracks, wheels, brakes, operating controls, pneumatic and hydraulic systems, electrical circuitry, engines and in techniques of welding and brazing.

Diesel and Heavy Equipment Technology: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain diesel engines in vehicles such as Heavy Duty Trucks over one ton classification, buses, ships, railroad locomotives, and equipment; as well as stationary diesel engines in electrical generators and related equipment.

Motorcycle Mechanics: A program that prepares individuals to apply technical knowledge and skills to repair, service, and maintain motorcycles and other similar powered vehicles. Includes instruction in lubrication and cooling systems, electrical and ignition systems, carburetion, fuel systems and adjustments of moving parts.

Recreational Vehicle Maintenance and Repair Technology: A program that prepares individuals to apply technical knowledge and skills to build, test, inspect, repair, service and maintain recreational vehicles, systems, and interior and exterior components. Includes instruction in brake, hydraulic, and towing systems; electrical systems; propane systems and propane and electric appliances; carpentry; plumbing; welding; and structural frames.

Approved by the State Board of Community Colleges on August 16, 2012; Editorial Revision 09/05/12; Editorial Revision 12/14/12; Editorial Revision 08/21/13; Editorial Revision 03/11/14; Revised SBCC 04/17/15; SBCC Revised (D60310) 10/21/16; Editorial Revision 11/08/16; Editorial Revision 11/30/16; SBCC Revised ___.

I. General Education Academic Core

[*Curriculum Requirements for associate degree, diploma, and certificate programs in accordance with 1D SBCCC 400.97 (3)]*: *Degree programs must contain a minimum of 15 semester hours including at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics. Degree programs must contain a minimum of 6 semester hours of communications. Diploma programs must contain a minimum of 6 semester hours of general education; 3 semester hours must be in communications. General education is optional in certificate programs.*

Mobile Equipment Maintenance and Repair

Recommended General Education Academic Core					AAS	Diploma	Certificate
Minimum General Education Hours Required:					**15 SHC**	**6 SHC**	**0 SHC**
Courses listed below are recommended general education courses for this curriculum standard. Colleges may choose to include additional or alternative general education courses to meet local curriculum needs. **Recommended certificate and diploma level curriculum courses. These courses may <u>not</u> be included in associate degree programs.*							
Communication:					**6 SHC**	**3-6 SHC**	**Optional**
*	COM	101	Workplace Communication	3 SHC			
	COM	110	Introduction to Communications	3 SHC			
	COM	120	Intro Interpersonal Com	3 SHC			
	COM	231	Public Speaking	3 SHC			
*	ENG	101	Applied Communications I	3 SHC			
*	ENG	102	Applied Communications II	3 SHC			
	ENG	110	Freshman Composition	3 SHC			
	ENG	111	Expository Writing	3 SHC			
	ENG	114	Prof Research & Reporting	3 SHC			
	ENG	116	Technical Report Writing	3 SHC			
Humanities/Fine Arts:					**3 SHC**	**0-3 SHC**	**Optional**
	HUM	110	Technology and Society	3 SHC			
	HUM	115	Critical Thinking	3 SHC			
	HUM	230	Leadership Development	3 SHC			
	PHI	230	Introduction to Logic	3 SHC			
	PHI	240	Introduction to Logic	3 SHC			
Social /Behavioral Sciences:					**3 SHC**	**0-3 SHC**	**Optional**
	ECO	151	Survey of Economics	3 SHC			
	ECO	251	Principles of Microeconomics	3 SHC			
*	SOC	105	Social Relationships	3 SHC			
	SOC	210	Introduction to Sociology	3 SHC			
	SOC	215	Group Process	3 SHC			
*	PSY	101	Applied Psychology	3 SHC			
*	PSY	102	Human Relations	2 SHC			
	PSY	118	Interpersonal Psychology	3 SHC			
	PSY	135	Group Processes	3 SHC			
	PSY	150	General Psychology	3 SHC			
Natural Sciences/Mathematics:					**3 SHC**	**0-3 SHC**	**Optional**
	MAT	110	Math Measurement & Literacy I	3 SHC			
	MAT	121	Algebra/Trigonometry I	3 SHC			
	MAT	143	Quantitative Literacy	3 SHC			
	MAT	152	Statistical Methods I	4 SHC			
	PHY	110	Conceptual Physics	3 SHC			
	PHY	121	Applied Physics I	4 SHC			

II. Major Hours. AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit. Below is a description of each section under Major Hours.

A. Technical Core. The technical core is comprised of specific courses which are required for all Program Majors under this Curriculum Standard. A diploma program offered under an approved AAS program standard or a certificate which is the highest credential level awarded under an approved AAS program standard must include a minimum of 12 semester hours credit derived from the curriculum core courses or core subject area of the AAS program.

B. Program Major(s). The Program Major must include a minimum of 12 semester hours credit from required subjects and/or courses. The Program Major is in addition to the technical core.

C. Other Major Hours. Other major hours must be selected from prefixes listed on the curriculum standard. A maximum of 9 semester hours of credit may be selected from each prefix listed, with the exception of prefixes listed in the core.

Mobile Equipment Maintenance and Repair				AAS	Diploma	Certificate
Minimum Major Hours Required:				**49 SHC**	**30 SHC**	**12 SHC**
A. Technical Core:				**19-27 SHC**	**17-21 SHC**	
Courses required for the diploma program major are designated with an asterisk (*).						
***Fundamental Transportation Skills. Choose one minimum:**						
TRN	110	Intro to Transport Tech	2 SHC			
TRN	111	Chassis Maint/Light Repair	4 SHC			
TRN	112	Powertrain Maint/Light Repair	4 SHC			
TRN	170	PC Skills for Transp	2 SHC			
HET	134	Diesel Fuel and Power Sy	3 SHC			
***Intermediate Transportation Skills. Choose one minimum:**						
TRN	120	Basic TranspElectricity	5 SHC			
TRN	130	Intro to Sustainable Transp	3 SHC			
TRN	180	Basic Welding for Transp	3 SHC			
Specialized Transportation Skills. Choose one minimum:						
TRN	140	Transp Climate Control	2 SHC			
TRN	145	Adv Transp Electronics	3 SHC			
WLD	110	Cutting Processes	2 SHC			
B. Program Major(s).						
For both AAS Degree and Diploma, select one program major plus additional courses from the prefixes listed within the same program major for a minimum of (12) semester hours of credits.						
Agricultural Systems Technology						
ELN	112	Diesel Electronics System	4 SHC			
PME	111	Harvest and Spraying Equip	4 SHC			
PME	112	Consumer Products	2 SHC			
PME	121	Component Controls	2 SHC			
Alternative Transportation Technology						
ATT	115	Green Trans Safety and Service	2 SHC			
ATT	125	Hybrid-Electric Transportation	4 SHC			

ATT	140	Emerging Transp Techn	3 SHC			
Automotive Customizing Technology						
AUB	111	Painting and Refinishing I	4 SHC			
AUC	111	Auto Customizing Research	3 SHC			
AUC	112	Auto Custom Fabrication	4 SHC			
Automotive Light-Duty Diesel Technology						
LDD	112	Intro Light-Duty Diesel	3 SHC			
LDD	116	Diesel Electric-Drive	4 SHC			
LDD	181	LDD Fuel Systems	4 SHC			
Automotive Restoration Technology						
ARS	112	Auto Restoration Research	3 SHC			
ARS	113	Automotive Upholstery	4 SHC			
ARS	114	Restoration Skills I	4 SHC			
Automotive Systems Technology						
AUT	141	Suspension and Steering Sys	3 SHC			
AUT	151	Brake Systems	3 SHC			
AUT	181	Engine Performance I	3 SHC			
Collision Repair and Refinishing Technology						
AUB	111	Painting and Refinishing I	4 SHC			
AUB	121	Non-Structural Damage I	3 SHC			
AUB	131	Structural Damage I	4 SHC			
Construction Equipment Systems Technology						
HYD	134	Hyd/Hydrostatic Construction	4 SHC			
PME	117	Equipment Braking Systems	3 SHC			
PME	118	Undercarriage Components	2 SHC			
PME	221	Const Equip Servicing	2 SHC			
Diesel and Heavy Equipment Technology						
HET	110	Diesel Engines	6 SHC			
HET	114	Power Trains	5 SHC			
HET	125	Preventive Maintenance	2 SHC			
		Or				
MRN	121	Marine Engines	4 SHC			
MRN	147	Marine Power Trains	4 SHC			
MRN	150	Adv. Marine Electricity	5 SHC			
Motorcycle Mechanics						
MCM	111	Motorcycle Mechanics	7 SHC			
MCM	114	Motorcycle Fuel Systems	5 SHC			
MCM	115	Motorcycle Chassis	3 SHC			
Recreational Vehicle Maintenance and Repair Technology						
RVM	160	RV Water Systems	4 SHC			
RVM	180	Heating/Mechanical Systems	2 SHC			
TRN	140	Transp Climate Control	2 SHC			

C. Other Major Hours.

To be selected from the following prefixes:

ACC, ARS, ATR, ATT, AUB, AUC, AUM, AUT, BMS, BPR, BTB, BUS, CIS, CSC, CTS, DBA, DDF, DEA, DFT, ELC, ELN, FBG, GRA, HET, HYD, ISC, LDD, LOG, MAC, MCM, MEC, MKT, MPS, MRN, MSM, NOS, PHY, PME, RCT, RVM, SST, TDP, TRN, WBL, WEB, and WLD

Up to two semester hour credits may be selected from ACA.
Up to three semester hour credits may be selected from the following prefixes: ARA, ASL, CHI, FRE, GER, ITA, JPN, LAT, POR, RUS and SPA.

Approved by the State Board of Community Colleges on August 16, 2012; Editorial Revision 09/05/12; Editorial Revision 12/14/12; Editorial Revision 08/21/13; Editorial Revision 03/11/14; Revised SBCC 04/17/15; SBCC Revised (D60310) 10/21/16; Editorial Revision 11/08/16; Editorial Revision 11/30/16; SBCC Revised ___.

III. Other Required Hours

A college may include courses to meet graduation or local employer requirements in a certificate (0-1 SHC), diploma (0-4 SHC), or an associate in applied science (0-7 SHC) program. These curriculum courses shall be selected from the Combined Course Library and must be approved by the System Office prior to implementation. Restricted, unique, or free elective courses may not be included as other required hours.

IV. Employability Competencies

Fundamental competencies that address soft skills vital to employability, personal, and professional success are listed below. Colleges are encouraged to integrate these competencies into the curriculum by embedding appropriate student learning outcomes into one or more courses or through alternative methods.

A. Interpersonal Skills and Teamwork – The ability to work effectively with others, especially to analyze situations, establish priorities, and apply resources for solving problems or accomplishing tasks.

B. Communication – The ability to effectively exchange ideas and information with others through oral, written, or visual means.

C. Integrity and Professionalism – Workplace behaviors that relate to ethical standards, honesty, fairness, respect, responsibility, self-control, criticism and demeanor.

D. Problem-solving – The ability to identify problems and potential causes while developing and implementing practical action plans for solutions.

E. Initiative and Dependability – Workplace behaviors that relate to seeking out new responsibilities, establishing and meeting goals, completing tasks, following directions, complying with rules, and consistent reliability.

F. Information processing – The ability to acquire, evaluate, organize, manage, and interpret information.

G. Adaptability and Lifelong Learning – The ability to learn and apply new knowledge and skills and adapt to changing technologies, methods, processes, work environments, organizational structures and management practices.

H. Entrepreneurship – The knowledge and skills necessary to create opportunities and develop as an employee or self-employed business owner.

An **Employability Skills Resource Toolkit has been developed by NC-NET for the competencies listed above. Additional information is located at: http://www.nc-net.info/employability.php*

**The *North Carolina Career Clusters Guide was developed by the North Carolina Department of Public Instruction and the North Carolina Community College system to link the academic and Career and Technical Education programs at the secondary and postsecondary levels to increase student achievement. Additional information about Career Clusters is located at: http://www.nc-net.info/NC_career_clusters_guide.php or http://www.careertech.org.*

Summary of Required Semester Hour Credits (SHC) for each credential:

	AAS	Diploma	Certificate
Minimum General Education Hours	15	6	0
Minimum Major Hours	49	30	12
Other Required Hours	0-7	0-4	0-1
Total Semester Hours Credit (SHC)	**64-76**	**36-48**	**12-18**

Approved by the State Board of Community Colleges on August 16, 2012; Editorial Revision 09/05/12; Editorial Revision 12/14/12; Editorial Revision 08/21/13; Editorial Revision 03/11/14; Revised SBCC 04/17/15; SBCC Revised (D60310) 10/21/16; Editorial Revision 11/08/16; Editorial Revision 11/30/16; SBCC Revised ___.