NORTH CAROLINA COMMUNITY COLLEGE SYSTEM
Dr. James C. Williamson
President

March 20, 2017

MEMORANDUM

TO: Presidents
Chief Academic Officers

FROM: Wesley E. Beddard, Associate Vice President
Programs

SUBJECT: State Board Action on March 17, 2017
Revised Curriculum Standards

On March 17, 2017, the State Board of Community Colleges approved the following curriculum standard revision:

Chemical Technology (A20120)

An outline of the specific curriculum standard revision is attached for your convenience. Please be aware that you must implement the revised curriculum standard no later than one year after the effective term. You must update your college's electronic program of study and receive approval from the System Office prior to implementation of the revised program.

In addition, the State Board approved proposed ***recommended*** general education mathematics courses to be listed within the *Natural Science/Mathematics* category on the attached list of career cluster curriculum standard program areas. 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. *There is no need to update your college's electronic program(s) of study in these program areas unless you want to revise your mathematics general education selections to parallel the recommendation(s).*

The approved mathematics course recommendations affect approximately thirty curriculum standards, therefore, we have not included copies of all of these curriculum standards. The curriculum standards will be available on the Academic Programs website within the next few weeks. You may view all curriculum standards and courses by visiting the Academic Programs website at:

http://www.nccommunitycolleges.edu/academic-programs

If you have any questions concerning the State Board action items listed above, please contact Ms. Jennifer Frazelle at 919.807.7120 or frazellej@nccommunitycolleges.edu.

WB/JF/gr
Attachments

c: Dr. Lisa M. Chapman
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CC17-015
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Outline of Curriculum Standard Revisions
State Board of Community Colleges
March 17, 2017

Chemical Technology (A20120):

- Removed the following courses from the required core:

CTC 111 Basic Chemistry I	*CTC 140 Organic Processes*
CTC 112 Basic Chemistry II	*CTC 220 Organic Chemistry II*
CTC 120 Organic Chemistry I	*CTC 230 Biochemistry*

- *Added the following courses to the core:*

CTC 110 Chemical Safety & Technology	*CTC 150 Standards and Solutions*
CTC 114 Wet Laboratory Techniques	*CTC 210 Forensic Laboratory*
CTC 115 Quality Control Laboratory	*CTC 235 Food Chemistry*
CTC 145 Advanced Laboratory Methods	*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 approved by the Curriculum Review Committee (CRC) on February 23, 2017.

Proposed R*ecommended* General Education Mathematics Courses
Approved for Placement 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

CURRICULUM STANDARD

Effective Term
Fall 2017
*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.*

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.*	**38 SHC**	**12 SHC**	
Required Courses: CTC 110 Chemical Safety & Technology 2 SHC CTC 114 Wet Laboratory Techniques 5 SHC CTC 115 Quality Control Laboratory 5 SHC CTC 145 Advanced Laboratory Methods 6 SHC CTC 150 Standards & Solutions 2 SHC CTC 210 Forensic Laboratory 2 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; Editorial Revision 01/09/17; State Board Revised 03/17/17.