

STATE BOARD OF COMMUNITY COLLEGES
CURRICULUM STANDARD REVISIONS

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

Central Piedmont Community College
Nondestructive Examination Technology (A50350)

Contact Person:

Jennifer Frazelle, Director

Academic Programs

919.807.7120

frazellej@nccommunitycolleges.edu

CURRICULUM STANDARD REVISION

Central Piedmont Community College

Nondestructive Examination Technology (A50350)

Central Piedmont Community College is seeking approval to revise the Nondestructive Examination Technology (A50350) curriculum standard, effective Fall 2013. The proposed revisions follow:

- Eliminate the following courses from the core:

NDE 141	Surface Testing (VT/PT)
NDE 151	Electromag Test (MT/ET)

- Add the following courses to the core:

NDE 142	Visual Testing-1,2
NDE 143	Liquid Penetrant Testing-1,2
NDE 152	Magnetic Particle Testing-1,2
NDE 153	Eddy Current Testing-1

Rationale of Requesting College: The requested changes are necessary to ensure that the courses and program remain in accordance with industry standards for nondestructive examination. The revision results in the addition of more core subject matter content compared to the previous version of the curriculum standard.

Central Piedmont Community College is the only college approved to offer the program.

Coordinator: Mr. Frank Sculetta

**Curriculum Standard for Quality Assurance:
Nondestructive Examination Technology**

Career Cluster: Manufacturing**

Cluster Description: Planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing/process engineering.

Pathway: Quality Assurance

Effective Term: Fall 2013 (2013*03)

Program Majors Under Pathway

Program Major / Classification of Instruction Programs (CIP) Code	Credential Level(s) Offered	Program Major Code
Nondestructive Examination Technology	CIP Code: 41.0204	AAS/Diploma/Certificate
		A50350

Pathway Description: This curriculum is designed to prepare students to use scientific principles and technical skills to the operation of industrial and research testing equipment.

The course work includes mathematics, natural sciences, engineering sciences and technology.

Graduates should qualify to obtain occupations such as technical service providers, materials and technologies testing services, process improvement technicians, engineering technicians, construction technicians and managers, industrial and technology managers, or research technicians.

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:

Nondestructive Examination Technology: This course of study prepares the students to apply technical skills in nondestructive testing of materials and component parts for flaws or defects jeopardizing structural integrity. Course work includes ultrasonics, radiography, liquid penetrant, magnetic particle eddy current and visual testing methods. Applied math and physics are an integral part of NDE and the curriculum. The NDE curriculum meets the initial training requirements of ASNT's SNT-TC-1A, permitting graduates to obtain NDE certification after a few months of on-the-job experience. Career opportunities exist in applied NDE, material sciences, technical sales, and quality control in many industries.

*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.

I. General Education Academic Core

[Curriculum Requirements for associate degree, diploma, and certificate programs in accordance with 23 NCAC 02E.0204(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.

Quality Assurance: Nondestructive Examination Technology

General Education Academic Core	AAS	Diploma	Certificate
Minimum General Education Hours Required:	15 SHC	6 SHC	0 SHC
<p><i>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.</i></p> <p><i>*Recommended certificate and diploma level curriculum courses. These courses may <u>not</u> be included in associate degree programs.</i></p> <p>Communications:</p> <ul style="list-style-type: none"> *COM 101 Workplace Communication 3 SHC COM 110 Introduction to Communication 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 Professional Research & Reporting 3 SHC ENG 116 Technical Report Writing 3 SHC <p>Humanities/Fine Arts:</p> <ul style="list-style-type: none"> *HUM 101 Values in the Workplace 2 SHC 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 Ethics 3 SHC <p>Social/Behavioral Sciences:</p> <ul style="list-style-type: none"> ECO 151 Survey of Economics 3 SHC ECO 251 Prin of Microeconomics 3 SHC GEO 110 Introduction to Geography 3 SHC GEO 111 World Regional Geography 3 SHC GEO 131 Physical Geography I 4 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 *SOC 105 Social Relationships 3 SHC SOC 210 Introduction to Sociology 3 SHC SOC 215 Group Process 3 SHC <p>Natural Sciences/Mathematics:</p> <ul style="list-style-type: none"> MAT 120 Geometry and Trigonometry 3 SHC MAT 121 Algebra/Trigonometry I 3 SHC MAT 161 College Algebra 3 SHC MAT 171 Precalculus Algebra 3 SHC MAT 175 Precalculus 4 SHC MAT 223 Applied Calculus 3 SHC MAT 271 Calculus I 4 SHC 	6 SHC	3-6 SHC	Optional
	3 SHC	0-3 SHC	Optional
	3 SHC	0-3 SHC	Optional
	3 SHC	0-3 SHC	Optional

II. Major Hours. AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work experience, including cooperative education, practicums, and internships, 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 any prefix listed, with the exception of prefixes listed in the core.

<i>Quality Assurance: Nondestructive Examination Technology</i>	AAS	Diploma	Certificate
Minimum Major Hours Required:	49 SHC	30 SHC	12 SHC
<i>Courses required for a diploma are designated with *</i>	24 SHC 27 SHC	14 SHC	
A. Technical Core: * NDE 110 Intro to Nondestr Exam 3 SHC * NDE 112 Materials and Processes 3 SHC * NDE 121 Prin of Ultrason Exam UT 4 SHC * NDE 122 Angle Beam Examination 4 SHC NDE 131 Rad Safety & Prin of RT 4 SHC NDE 141 Surface Testing (VT/PT) 3 SHC NDE 151 Electromag Test (MT/ET) 3 SHC NDE 142 Visual Testing-1,2 2 SHC NDE 143 Liquid Penetrant Testing-1,2 2 SHC NDE 152 Magnetic Particle Testing-1,2 2 SHC NDE 153 Eddy Current Testing-1 3 SHC			
B. Program Major: Not applicable			
C. Other Major Hours. To be selected from the following prefixes: CIS, COE, CSC, DFT, EGR, ELC, ISC,MAC, MAT, MEC, NDE, PHY, SST, and WLD <i>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.</i>			

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.

***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