

# Nashville State Community College

## ATMAE Accreditation Self-Study

### General Information

The mission of Nashville State Community College is “to provide comprehensive educational programs and partnerships, exemplary services, an accessible, progressive learning environment, and responsible leadership to improve the quality of life for the communities it serves.” Nashville State offers associate degrees and certificates that prepare students to think and perform well whether entering the workforce or transferring to a university upon graduation. The college is open admission to any high school graduate or equivalent.

### Administration

The academic administration for programs seeking accreditation is:

President:

Dr. George Van Allen

V.P. of Academic Affairs (Institution Head):

Dr. Ellen Weed

Dean - Business, Applied Arts, and Technologies (Program Head):

Ms. Karen Stevenson

### Locations

The main campus is located in Nashville and serves a seven-county area including Cheatham, Dickson, Houston, Humphreys, Montgomery, Stewart, and most of Metropolitan Nashville-Davidson County. In addition to the main campus, Nashville State has four in-state centers:

- The Don Sundquist Center in Cookeville
- The Humphreys County Center in Waverly
- The Southeast Center in Nashville
- The Renaissance Center in Dickson

## Outcomes Assessments

Nashville State Community College (NSCC) is seeking initial ATMAE accreditation for the A.A.S. degrees in Architectural, Civil, and Construction Engineering Technology (ACT/CIT) and Electrical Engineering Technology (EETH). Each ATMAE standard shall be listed by number and italicized followed by the Nashville State response.

### ATMAE Portal

Nashville State developed an ATMAE Self-Study website for the visiting team. This portal acts as the main repository for ATMAE data with sections for Self-Study, Faculty Credentials, and Resources. Each section is a menu with numerous sub-menus. The website address is: <http://ww2.nsc.edu/atmae2010/>. Please note that the report references this portal in several standards.

### Accreditation Transition

The ACT/CIT and EETH degrees offered at the Nashville campus are accredited by ABET through September 30, 2010. ATMAE accreditations become effective in November with team visits conducted in March or April of the effective year. Nashville State has opted to seek accreditation effective November 2010. If accredited, this action should prevent a significant accreditation lapse as the next ATMAE effective date is November 2011. The EETH degree offered at the Cookeville campus is seeking initial accreditation.

Some standards will indicate both a current and an approved action (future) response. These actions will be implemented to comply with ATMAE requirements and have been approved by all oversight parties. However, to remain ABET compliant through the current accreditation cycle while correlating as closely as possible to Nashville State's academic calendar, most of these actions will become effective fall semester 2010. Such items will be noted in the respective responses.

### Standards for Accreditation

***7.1 Program Title, Mission, and General Outcomes:*** *The program/option title, definition and mission shall be compatible with the ATMAE definition of Technology, Management, and Applied Engineering. The program/option shall lead to a degree at the associate, bachelors, or master's level. ATMAE approved definitions for degree programs are as follows:*

*Associate Degree: Programs/options that prepare individuals for positions that contribute to the design and development, production, distribution or operational support of complex technical systems.*

**Response:**

Nashville State AAS technology programs prepare students for employment upon graduation in highly skilled technical positions in business/industry. This supports the institution's mission by equipping students with the skills necessary to become productive and responsible leaders in today's workplace. Program specific mission statements for ACT/CIT and EETH are:

The mission of the Architectural, Civil and Construction Engineering Technology program is to provide educational opportunities that prepare students for successful careers as professional engineering technicians, and to provide an opportunity for students to learn leadership and problem-solving skills, responsibility to society, commitment to quality, ethics, and lifelong learning.

The mission of the Electrical Engineering Technology program is to provide the necessary theory and practical applications in applied electrical engineering technology for graduates to secure employment in manufacturing and other industries having a diversified understanding of modern methods and insight for comprehending new and future developments.

Each program contains a technical core along with a general education foundation and strives to balance theoretical concepts in the classroom with applied applications in modern laboratories to give graduates the ability to respond to workplace challenges.

**Standard:**

*General outcomes shall be established for each program/option that provides a framework for the development of specific measurable competencies. Validation of the general outcomes shall be accomplished through a combination of external experts, an industrial advisory committee and, after the program is in operation, follow up studies of graduates.*

**Response:**

General (program) outcomes for ACT/CIT and EETH have been identified and validated. New program and concentration outcomes will become effective fall semester 2010. Program outcomes were developed in consultation with and validated by the appropriate advisory committee. Advisory committee approval is evidenced in the advisory committee minutes which are available for team member review in the ATMAE Resource Room. See Program and Concentration Outcomes in Exhibit 7.1.1a and 7.1.1b.

## **ACT/CIT Program and Concentration Outcomes**

### **Exhibit 7.1.1a**

## **Architectural, Civil and Construction Engineering Technology**

### **Program Outcomes**

- Demonstrate an ability to identify, analyze, and interpret data in order to solve technical problems.
- Function on teams demonstrating leadership and team skills.
- Demonstrate the ability to communicate both in oral and written mediums by preparing reports and presentations from multiple sources.

### **Concentration Outcomes**

#### **ACT**

- Produce a set of residential and commercial architectural schematic design and design development documents using current computer applications.
- Demonstrate basic knowledge of producing construction drawings.
- Produce three-dimensional models and presentations drawings using traditional and computer generated techniques.
- Demonstrate knowledge of the materials and methods of construction for residential and commercial buildings.
- Identify and calculate the physical forces exerted on building structures.

#### **CIT**

- Perform basic calculations in the fields of surveying, water, structures and construction.
- Use current computer software applications specific to the civil and construction industry.
- Demonstrate knowledge of the materials and methods of construction for residential and commercial buildings.
- Operate designated tools and equipment in a lab and field environment.

**EETH Program and Concentration Outcomes**  
Exhibit 7.1.1b

**Electrical Engineering Technology**

**Program Outcomes**

- Demonstrate the knowledge and ability to apply circuit analysis and design, computer technology, analog and digital electronics, and electrical and electronic principles to install, test, and maintain systems.
- Demonstrate the ability to effectively communicate using oral, written, and graphical skills.
- Function on teams demonstrating leadership, individual ability, and team skills.
- Exhibit a commitment to quality and dependability.

**Concentration Outcomes**

**Automated Control Systems**

- Differentiate, analyze, and construct DC and AC circuits.
- Create original and modify existing programs for PLCs and other programmable devices.
- Create functional and usable HMIs programs.
- Integrate various off-the-shelf automation products to produce a complete automated manufacturing system.
- Use software application programs such as CAD, word processors, and spreadsheets, to produce technical documents such as operations manuals, electrical schematics, and technical reports.

**Convergence**

- Differentiate, analyze, and construct DC and AC circuits.
- Examine and demonstrate the application of discrete devices, digital, and analog circuits.
- Understand and apply proper techniques for analyzing and producing drawings.
- Understand analog and digital information transmission by wire, fiber, and wireless.
- Understand networking concepts and IP routing.
- Understand maintaining a digital PBX and VoIP network.

**Electrical**

- Differentiate, analyze, and construct DC and AC circuits.
- Examine and demonstrate the application of discrete devices, digital, and analog circuits.
- Understand and apply proper techniques for analyzing and producing drawings.
- Create original and modify existing PLC programs.
- Assemble and wire transformers and rotating machinery.
- Demonstrate knowledge of industrial electrical hardware, codes, and various electrical/electronic systems.

**Electronic**

- Differentiate, analyze, and construct DC and AC circuits.
- Examine and demonstrate the application of discrete devices, digital, and analog circuits.
- Understand and apply proper techniques for analyzing and producing drawings.
- Understand analog and digital information transmission by wire, fiber, and wireless.

**Standard:**

*Only institutions legally authorized under applicable state law to provide degree programs beyond the secondary level and that are recognized by the appropriate regional and/or national accrediting agency are considered for accreditation.*

**Response:**

In 1963, the Tennessee legislature authorized a statewide system of technical institutes and area vocational-technical schools. Under this legislation, the college opened as Nashville State Technical Institute in 1970. Since 1984, Nashville State has been governed by the Tennessee Board of Regents (TBR), with the Tennessee Higher Education Commission (THEC) as coordinating body for both the TBR and the University of Tennessee systems. Nashville State Technical Institute existed as a technical institute, offering only the A.A.S. degree, until 2002 when the mission of the college was expanded to that of a comprehensive community college with A.A. and A.S. degrees added to the curriculum. Nashville State Technical Community College was renamed Nashville State Community College in 2009. Nashville State Community College is regionally accredited by the Commission on Colleges of the Southern Association of Colleges and Schools.

**Standard:**

*Evidence must exist that the programs are understood and accepted by the university/college community, and the business/industry community.*

**Response:**

Internal and external acceptance of the technology programs is evidenced throughout the institution and in the community. Internal recognition is demonstrated through Nashville State catalog and website inclusion; cooperation with other academic and nonacademic departments; and program expenditures. Budgets and expenditures are discussed in Standard 7.8.

Nashville State programs strive to work closely with the community. Support for the technology programs is demonstrated by participation in program advisory committees; partnerships with companies such as Nissan, The Corps of Engineers, and TVA; and material and equipment donations by local companies.

**Standard:**

*Note: Each program/option shall have appropriate titles consistent with the approved ATMAE definition of Technology, Management, and Applied Engineering. Representative student transcripts for each program and/or option shall be made available for the visiting team.*

**Response:**

Nashville State is seeking initial accreditation for the following degrees. The degree title with concentration options are listed below:

- A.A.S. in Architectural, Civil, and Construction Engineering Technology
  - Architectural Engineering Technology
  - Civil and Construction Engineering Technology
- A.A.S. in Electrical Engineering Technology
  - Automated Control Systems (Cookeville Campus)
  - Convergence Engineering Technology
  - Electrical Engineering Technology
  - Electronic Engineering Technology

A representative student transcript for each concentration is available for team member review in the ATMAE Resource Room.

**7.2 Competency Identification & Validation:** *Measurable competencies shall be identified and validated for each program/option. These competencies must closely relate to the general outcomes established for the program/option and validation shall be accomplished through a combination of external experts, an industrial advisory committee and, after the program is in operation, follow up studies of program graduates.*

**Response:**

Concentration outcomes that closely relate to the program outcomes have been identified and validated for each concentration in ACT/CIT and EETH. These outcomes were developed in consultation with and validated by the appropriate advisory committee. See Exhibit 7.1.1a and 7.1.1b. Advisory committee approval is evidenced in the advisory committee minutes which are available for team member review in the ATMAE Resource Room.

**7.3 Transfer Course Work:** *The institution shall have policies in place to ensure that coursework transferred to the program is evaluated and approved by program faculty. All transfer coursework accepted must meet the minimum ATMAE course requirements for the degree program.*

**Response:**

College credit may be awarded to transfer students whose request meets transfer credit guidelines. These guidelines are in place to maintain transfer course equivalency integrity. Once a transfer request is received, the Records Department references a course transfer database to determine if the course has been approved. If the course has been approved, the transfer course is articulated. If not, a course evaluation form is generated and the course description along with any other pertinent information is forwarded to the respective academic division. A faculty member or other subject matter expert in the respective area will review the

request for equivalency determination. If approved, Records will articulate the course and update the transfer database. NSCC considers transfer coursework only if the student has earned a grade of 'C' or better. A Course Evaluation Request form is attached as Appendix A.

**7.4 Identification of Competency Measures:** *Assessment measures shall exist for each of the measurable competencies identified for the program/option.*

**Response:**

Student learning outcomes along with performance measures are identified for all courses. Assessment measures may include exams, quizzes, drawings, modeling, essays, technical reports, presentations, case studies, or lab projects. Student learning outcomes and assessment methodologies are shown in each course syllabus. Syllabi are available for review at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**7.5 Program Structure & Course Sequencing:** *Each program/option shall meet minimum foundation requirements. Programs/options may exceed maximum foundation requirements specified in each area, but appropriate justification must be provided. A specific list of courses and credit hours that are being counted toward each category shall be included in the Self Study Report (please use the attached table). Minimum and maximum foundation requirements for degree programs/options are listed below:*

*Associate's Degree: Major programs/options shall be a minimum of 60 semester hours and shall meet the following minimum/maximum foundation requirements:*

<i>Communications (must include both oral and written course).....</i>	<i>6-9</i>
<i>Mathematics.....</i>	<i>3-12</i>
<i>Physical Sciences*.....</i>	<i>3-12</i>
<i>Management and/or Technical.....</i>	<i>29-45</i>
<i>General Electives.....</i>	<i>0-12</i>

*\*Life Sciences may be appropriate for selected programs of study.*

**Response:**

All technical programs fall into the minimum and maximum ATMAE foundation requirements semester hour range. Current program requirements follow ABET accreditation requirements. See Accreditation Transition section on page 2 of this report. To become ATMAE compliant, ACT/CIT and EETH program requirements have been modified and will become effective fall semester 2010. NSCC administration and Curriculum Committee have approved the new curriculum. In addition, the appropriate program advisory committee has reviewed and approved the new requirements as evidenced in the advisory committee minutes. Advisory committee approval is evidenced in the advisory committee minutes which are available for team member review in the ATMAE Resource Room.



Foundation Requirements for each concentration are shown with current ABET curricula requirements followed by the new ATMAE curricula in Exhibits 7.5.1a – 7.5.6b.

**ACT Concentration Foundation Requirements (ABET)**  
Exhibit 7.5.1a

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	<b>Hours</b>
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	Total	3
	<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1730 Precalculus
	MATH 1840 Calculus for Technology	3
	Total	8
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	ACT 1161 Residential Design, Drafting and Const	4
	ACT 1391 History of Architecture	3
	ACT 1341 Commercial Design, Drafting and Codes	4
	ACT 2160 Building Utilities	3
	ACT 2242 Architectural Design Process	4
	ACT 2440 Specifications & Estimating	3
	CAD 1200 Computer-Aided Drafting I	3
	CAD 1301 Computer-Aided Drafting II	2
	CIT 1220 Materials/Methods Construction	3
	CIT 2110 Structural Mechanics	3
	CIT 2400 Structural Design	3
	ENGT 1000 Intro to Engr Technology	3
	ENGT 2800 Arch/Civil/Const Engr Tech Cap	1
	Technical Elective: 4 credit hours from the list below: ACT 2123 Architectural Graphics 2 cr hrs. ACT 2500 Interior Design and Architecture 2 cr hrs. ACT 2915 Co-operative Education 1.5 - 3 cr hrs CAD 2113 3-D AutoCAD & Solid Modeling 3 cr hrs CAD 1650 3-D Design Graphics 3 cr hrs. CAD 1510 CAD Final Project 2 cr hrs.	4
	Total	43
<b>Gen Ed</b> *TBR Requirement	*Humanities Elective	3
	*Social Sciences Elective	3
	Total	6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>64</b>

## ACT Concentration Foundation Requirements (ATMAE)

Exhibit 7.5.1b

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	SPCH 1010 Speech	3
	Total	6
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1710 Precalculus I	3
	MATH 1720 Precalculus II	3
	Total	6
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	ACT 1161 Residential Design, Drafting and Const	4
	ACT 1391 History of Architecture	3
	ACT 1341 Commercial Design, Drafting and Codes	4
	ACT 2123 Architectural Graphics	3
	ACT 2160 Building Utilities	3
	ACT 2242 Architectural Design Process	4
	ACT 2440 Specifications & Estimating	3
	CAD 1200 Computer-Aided Drafting I	3
	CAD 1650 3-D Design Graphics	3
	CIT 1220 Materials/Methods Construction	3
	CIT 2110 Structural Mechanics	3
	CIT 2400 Structural Design	3
	ENGT 2800 Arch/Civil/Const Engr Tech Cap	1
	Technical Elective: 2 credit hours from the list below: ACT 2500 Interior Design and Architecture 2 cr hrs. ACT 2915 Co-operative Education 1.5-3 cr hrs. CAD 2750 3-D Design Graphics II 3 cr hrs. CAD 1510 CAD Final Project 2 cr hrs. CIT 2114 Construction Management 3 cr hrs.	2
	Total	42
<b>Gen Ed</b> *TBR Requirement	*Humanities Elective	3
	*Social Sciences Elective	3
	Total	6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>64</b>

**CIT Concentration Foundation Requirements (ABET)**

Exhibit 7.5.2a

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	<b>Hours</b>
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	Total	3
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1730 Precalculus	5
	MATH 1840 Calculus for Technology	3
	Total	8
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	ACT 2440 Specifications & Estimating	3
	CAD 1200 Computer-Aided Drafting I	3
	CAD 1301 Computer-Aided Drafting II	2
	CIT 1220 Materials/Methods Construction	3
	CIT 1230 Testing of Materials	2
	CIT 2110 Structural Mechanics	3
	CIT 2114 Construction Management	3
	CIT 2131 Surveying I	4
	CIT 2200 Hydraulics and Water Systems	4
	CIT 2301 Hydrology and Site Design	3
	CIT 2311 Surveying II	4
	CIT 2400 Structural Design	3
	ENGT 1000 Intro to Engr Technology	3
	ENGT 2800 Arch/Civil/Const Engr Tech Cap	1
	Technical Elective: 4 credit hours from the list below: ACT 2123 Architectural Graphics 2 cr hrs. ACT 2915 Co-operative Education 1.5-3 cr hrs CAD 2113 3-D AutoCAD & Solid Modeling 3 cr hrs CAD 1650 3-D Design Graphics 3 cr hrs.	2
	Total	43
<b>Gen Ed</b> *TBR Requirement	*Humanities Elective	3
	*Social Sciences Elective	3
	Total	6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>64</b>

## CIT Concentration Foundation Requirements (ATMAE)

Exhibit 7.5.2b

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	SPCH 1010 Speech	3
	Total	6
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1710 Precalculus I	3
	MATH 1720 Precalculus II	3
	Total	6
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	ACT 1161 Residential Drafting & Construction	4
	ACT 2440 Specifications & Estimating	3
	CAD 1200 Computer-Aided Drafting I	3
	CIT 1220 Materials/Methods Construction	3
	CIT 1230 Testing of Materials	2
	CIT 2110 Structural Mechanics	3
	CIT 2114 Construction Management	3
	CIT 2131 Surveying I	4
	CIT 2200 Hydraulics and Water Systems	3
	CIT 2301 Hydrology & Site Design	3
	CIT 2311 Surveying II	4
	CIT 2400 Structural Design	3
	CIT 2800 CIT Capstone	1
	Technical Elective: 2 credit hours from the list below:	
	CIT 2915 Co-operative Education      1.5-3 cr hrs	2
	CAD 1510 CAD Final Project                      2 cr hrs.	
ACT 2160 Building Utilities                      3 cr hrs.		
Total	42	
<b>Gen Ed</b> *TBR Requirement	*Humanities Elective	3
	*Social Sciences Elective	3
	Total	6
<b>A.A.S. Degree Semester Hours Total</b>		<b>64</b>

**ACS Concentration Foundation Requirements (ABET)**

Exhibit 7.5.3a

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	<b>Hours</b>
<b>Communications</b> 6-9 Semester Hours	ENGL 1010 English Composition I	3
	Total	3
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1730 Precalculus	5
	MATH 1840 Calculus for Technology	3
	Total	8
<b>Physical Sciences</b> 3-12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	^CIS 2215 Basic Programming for Eng Tech	3
	EETH 1110 Electric Circuits	4
	EETH 1115 Electric Circuits Lab	1
	EETH 1220 Transformers/Rotating Machines	2
	EETH 1225 Transformers/Rotat. Mach. Lab	1
	EETH 1400 Digital Electronics	2
	EETH 1405 Digital Electronics Lab	1
	EETH 2010 Industrial Elec. Controls	3
	EETH 2015 Industrial Elec. Controls Lab	1
	EETH 2350 Graphical Machine Interfaces	3
	EETH 2360 Industrial Communications	3
	EETH 2370 Programmable Process Contr.	3
	EETH 2380 Computer Integrated Lab	3
	EETH 2600 Automatic Control Systems	4
	EETH 2800 Electrical Capstone Course	1
	ENGT 1000 Intro to Engr Technology	3
Total	38	
<b>Electives</b> 0 - 12 Hours	CAD 1200 Computer-Aided Drafting I	3
	Co-operative Education	1.5-3
	^CPT 1500 Microprocessor Sys. Principles	3
	EETH 1210 Electronic Circuits	4
	EETH 1215 Electronic Circuits Lab	1
	^EETH 2330 Advanced PLC Programming	4
	EETH 2390 Robotics	4
	ENGT 1150 Technical Graphics	2
	^IMC 1210 CNC Machining I	4
	IMC 2015 Hydraulics and Pneumatics	4
Total	5	
<b>Gen Ed</b> *TBR Requirement	*Humanities Elective	3
	*Social Sciences Elective	3
	Total	6
<b>A.A.S. Degree Semester Hours Total</b>		<b>64</b>

^Deleted from curriculum. Course substitutions allowed. ^^Deleted from curriculum.

## ACS Concentration Foundation Requirements (ATMAE)

Exhibit 7.5.3b

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 - English Composition I	3
	SPCH 1010 – Speech	3
	Total	6
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1630 – Finite Mathematics	3
	Total	3
<b>Physical Sciences</b> 3 - 12 Semester Hours	PSCI 1030 – Survey of Physical Science	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	CAD 1200 Computer-Aided Drafting I	3
	EETH 1110 Electric Circuits	4
	EETH 1115 Electric Circuits Lab	1
	EETH 1220 Transformers/Rotating Machines	2
	EETH 1225 Transformers/Rotat. Mach. Lab	1
	EETH 1400 Digital Electronics	2
	EETH 1405 Digital Electronics Lab	1
	EETH 2010 Industrial Elec. Controls	3
	EETH 2015 Industrial Elec. Controls Lab	1
	EETH 2340 Programmable Motion Contr	3
	EETH 2350 Graphical Machine Interfaces	3
	EETH 2360 Industrial Communications	3
	EETH 2370 Programmable Process Contr.	3
	EETH 2380 Computer Integrated Lab	4
	EETH 2600 Automatic Control Systems	4
	ENGT 1000 Intro to Engr Technology	3
	IMC 2015 Hydraulics and Pneumatics	4
	Total	45
<b>Gen Ed</b> *TBR Requirement	*Humanities Elective	3
	*Social Sciences Elective	3
	Total	6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>64</b>

**Convergence Concentration Foundation Requirements (ABET)**

Exhibit 7.5.4a

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	<b>Hours</b>
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	Total	3
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1730 Precalculus	5
	MATH 1840 Calculus for Technology	3
	Total	8
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	CNT 1060 Cisco Routers I	4
	CNT 1160 Cisco Routers II	4
	CNT 1090 Wireless Networking	4
	CNT 2460 VoIP	3
	CPT 2425 UNIX/Linux	4
	EETH 1110/1115 Electrical Circuits/Lab	5
	EETH 1210/1215 Electronic Circuits/Lab	5
	EETH 1400/1405 Digital Electronics/Lab	3
	EETH 2250/2255 Fiber Optics and Cabling/Lab	4
	^EETH 2400 Optical & EM Propagation	4
	^EETH 2700 Convergence Technology	1
	ENGT 1000 Intro to Engr Technology	3
	Total	44
<b>Gen Ed</b> *TBR Requirement	*PHIL 1111 Introduction to Ethics	3
	*ECON 1111 Principles of Macroeconomics	3
	Total	6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>65</b>

^Deleted from curriculum. Course substitutions allowed.

## Convergence Concentration Foundation Requirements (ATMAE)

Exhibit 7.5.4b

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	SPCH 1010 Speech	3
	Total	6
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1630 Finite Mathematics	3
	Total	3
<b>Physical Sciences</b> 3 - 12 Semester Hours	PSCI 1030 Survey of Physical Science	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	CNT 1060 Cisco Routers I	4
	CNT 1160 Cisco Routers II	4
	CNT 1090 Wireless Networking	4
	CNT 2460 VoIP	3
	CPT 2425 UNIX/Linux	4
	EETH 1110/1115 Electrical Circuits/Lab	5
	EETH 1210/1215 Electronic Circuits/Lab	5
	EETH 1400/1405 Digital Electronics/Lab	3
	EETH 2250/2255 Fiber Optics and Cabling/Lab	4
	EETH 2240/2245 Instrumentation/Lab	3
	EETH 2800 Electrical Capstone Course	1
	ENGT 1000 Intro to Engr Technology	3
	ENGT 1150 Technical Graphics	2
	Total	45
	<b>Gen Ed</b> *TBR Requirement	*PHIL 1111 Introduction to Ethics
*ECON 1111 Principles of Macroeconomics		3
Total		6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>64</b>



## Electrical Concentration Foundation Requirements **(ABET)**

Exhibit 7.5.5a

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)		Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I		3
		Total	3
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1730 Precalculus		5
	MATH 1840 Calculus for Technology		3
		Total	8
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I		4
		Total	4
<b>Technical</b> 29 - 45 Semester Hours	CIS 1030 Program Logic and Design <u>or</u>		3
	CPT 2425 UNIX/Linux		4
	EETH 1110/1115 Electrical Circuits/Lab		5
	EETH 1210/1215 Electronic Circuits/Lab		5
	EETH 1220/1225 Transformers/Rotating Machines/Lab		3
	EETH 1400/1405 Digital Electronics/Lab		3
	EETH 2010/2015 Industrial Elec. Controls/Lab		4
	^EETH 2400 Optical & EM Propagation		4
	EETH 2600 Automatic Control Systems		4
	EETH 2640 Power Distribution		4
	EETH 2800 Electrical Capstone Course		1
	ENGT 1000 Intro to Engr Technology		3
		Total	39/40
<b>Electives</b> 0 - 12 Semester Hours	Co-operative Education		1.5-3
	CAD 1200 Computer-Aided Drafting I		3
	EETH 2210 Circuit Analysis		2
	EETH 2240/2245 Instrumentation/Lab		3
	EETH 2250/2255 Fiber Optics and Cabling/Lab		4
	^EETH 2700 Convergence Technology		1
	ENGT 1150 Technical Graphics		2
	IMC 2015 Hydraulics and Pneumatics		4
	Total	4	
<b>Gen Ed</b> *TBR Requirement	*PHIL 1111 Introduction to Ethics		3
	*ECON 1111 Principles of Macroeconomics		3
		Total	6
	<b>A.A.S. Degree Semester Hours Total</b>		<b>64/65</b>

^Deleted from curriculum. Course substitutions allowed.

## Electrical Concentration Foundation Requirements (ATMAE)

Exhibit 7.5.5b

<b>ATMAE Requirements</b>	<b>NSSC Degree Requirements</b> (course prefix, number, and title)	Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	SPCH 1010 Speech	3
	Total	6
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1630 Finite Mathematics	3
	Total	3
<b>Physical Sciences</b> 3 - 12 Semester Hours	PSCI 1030 Survey of Physical Science	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	CAD 1200 Computer-Aided Drafting I	3
	CPT 2425 UNIX/Linux	4
	EETH 1110/1115 Electrical Circuits/Lab	5
	EETH 1210/1215 Electronic Circuits/Lab	5
	EETH 1220/1225 Transformers/Rotating Machines/Lab	3
	EETH 1400/1405 Digital Electronics/Lab	3
	EETH 2010/2015 Industrial Elec. Controls/Lab	4
	EETH 2240/2245 Instrumentation/Lab	3
	EETH 2600 Automatic Control Systems	4
	EETH 2640 Power Distribution	4
	EETH 2800 Electrical Capstone Course	1
	ENGT 1000 Intro to Engr Technology	3
	Total	42
	<b>Electives</b> 0 - 12 Semester Hours	Co-operative Education
EETH 2210 Circuit Analysis		2
EETH 2250/2255 Fiber Optics and Cabling/Lab		4
ENGT 1150 Technical Graphics		2
IMC 2015 Hydraulics and Pneumatics		4
Total		3
<b>Gen Ed</b> *TBR Requirement	*PHIL 1111 Introduction to Ethics	3
	*ECON 1111 Principles of Macroeconomics	3
	Total	6
	<b>A.A.S. Degree Semester Hours Total</b>	<b>64</b>

## Electronic Concentration Foundation Requirements **(ABET)**

Exhibit 7.5.6a

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)	Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I	3
	Total	3
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1730 Precalculus	5
	MATH 1840 Calculus for Technology	3
	Total	8
<b>Physical Sciences</b> 3 - 12 Semester Hours	PHYS 2010 Non-Calculus Physics I	4
	Total	4
<b>Technical</b> 29 - 45 Semester Hours	CIS 1030 Program Logic and Design <b>or</b>	3
	CPT 2425 UNIX/Linux	or 4
	EETH 1110/1115 Electrical Circuits/Lab	5
	EETH 1210/1215 Electronic Circuits/Lab	5
	EETH 1400/1405 Digital Electronics/Lab	3
	EETH 2010/2015 Industrial Elec. Controls/Lab	4
	EETH 2220/2225 Electronic Communications/Lab	3
	EETH 2230/2235 Digital Communications/Lab	3
	EETH 2250/2255 Fiber Optics and Cabling/Lab	4
	^EETH 2400 Optical & EM Propagation	4
	EETH 2800 Electrical Capstone Course	1
	ENGT 1000 Intro to Engr Technology	3
	Total	38/39
<b>Electives</b> 0 - 12 Semester Hours	Co-operative Education	1.5-3
	CAD 1200 Computer-Aided Drafting I	3
	EETH 2210 Circuit Analysis	2
	EETH 2240/2245 Instrumentation/Lab	3
	EETH 2250/2255 Fiber Optics and Cabling/Lab	4
	^EETH 2700 Convergence Technology	1
	ENGT 1150 Technical Graphics	2
	IMC 2015 Hydraulics and Pneumatics	4
Total	6	
<b>Gen Ed</b> *TBR Requirement	*PHIL 1111 Introduction to Ethics	3
	*ECON 1111 Principles of Macroeconomics	3
	Total	6
<b>A.A.S. Degree Semester Hours Total</b>		<b>65/66</b>

^Deleted from curriculum. Course substitutions allowed.

## Electronic Concentration Foundation Requirements (ATMAE)

Exhibit 7.5.6b

<b>ATMAE Requirements</b>	<b>NSCC Degree Requirements</b> (course prefix, number, and title)		Hours
<b>Communications</b> 6 - 9 Semester Hours	ENGL 1010 English Composition I		3
	SPCH 1010 Speech		3
	Total		6
<b>Mathematics</b> 3 - 12 Semester Hours	MATH 1630 Finite Mathematics		3
	Total		3
<b>Physical Sciences</b> 3 - 12 Semester Hours	PSCI 1030 Survey of Physical Science		4
	Total		4
<b>Technical</b> 29 - 45 Semester Hours	CAD 1200 Computer-Aided Drafting I		3
	CPT 2425 UNIX/Linux		4
	EETH 1110/1115 Electrical Circuits/Lab		5
	EETH 1210/1215 Electronic Circuits/Lab		5
	EETH 1400/1405 Digital Electronics/Lab		3
	EETH 2010/2015 Industrial Elec. Controls/Lab		4
	EETH 2220/2225 Electronic Communications/Lab		3
	EETH 2230/2235 Digital Communications/Lab		3
	EETH 2250/2255 Fiber Optics and Cabling/Lab		4
	EETH 2240/2245 Instrumentation/Lab		3
	EETH 2800 Electrical Capstone Course		1
	ENGT 1000 Intro to Engr Technology		3
	Total		41
	<b>Electives</b> 0 - 12 Semester Hours	Co-operative Education	
EETH 2210 Circuit Analysis			2
IMC 2015 Hydraulics and Pneumatics			4
Total		4	
<b>Gen Ed</b> *TBR Requirement	*PHIL 1111 Introduction to Ethics		3
	*ECON 1111 Principles of Macroeconomics		3
	Total		6
<b>A.A.S. Degree Semester Hours Total</b>			<b>64</b>

**Standard:**

*Students must successfully complete a minimum of 12 semester hours of management and/or technical course work at the institution seeking accreditation.*

**Response:**

NSCC residency requirements state that 1) students must complete at least 25% of credit hours required for their degree through instruction at NSCC and 2) associate degree students must earn the last 15 hours preceding graduation at Nashville State. See Graduation Requirements in the 2009 – 2011 NSCC catalog at [http://www.nsc.edu/content/resources/Student\\_Records\\_and\\_Registration\\_Procedures.pdf](http://www.nsc.edu/content/resources/Student_Records_and_Registration_Procedures.pdf) .

In addition, technology students earning associate degrees must complete a minimum of 12 semester hours of technical course work at NSCC. See the ACT/CIT and EETH program websites at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**Standard:**

*Appropriate laboratory activities shall be included in the program/option and a reasonable balance shall be maintained between the practical application of “how” and the conceptual application of “why.”*

**Response:**

The technology courses are designed to combine lecture with practical application. Theoretical discussions of “why” are presented in classroom settings through instructor lectures utilizing textbooks, reference materials, etc. while the practical application of “how” is practiced by students in a laboratory or a controlled field-work environment under instructor supervision.

**Standard:**

*There shall be evidence of appropriate sequencing of courses in each major program/option to ensure that applications of mathematics, science, written and oral communications are covered in technical and management courses. Examples of graded student work and textbooks for each course shall be provided for the visiting team. Further, sequencing should ensure that advanced level courses build upon concepts covered in beginning level courses.*

**Response:**

To help ensure student academic success, all programs have a recommended course schedule that includes both general education and technical classes. Courses are sequenced so that entry level students learn technological fundamentals in introductory type courses before taking advanced level classes. Introductory classes do not have collegiate-level prerequisites or co-requisites. Completion of introductory classes is required before taking advanced courses. Program advising sheets outline the recommended semester schedules and are available for team member review at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**7.6 Student Admission & Retention Standards:** *There shall be evidence showing that the quality of Technology, Management, and Applied Engineering students is comparable to the quality of students enrolled in other majors at the institution. The standards for admission and retention of Technology, Management, and Applied Engineering students shall compare favorably with institutional standards. Sources of admission information may include test scores and grade rankings. Sources of retention information may include general grade point averages of Technology, Management, and Applied Engineering students compared to majors in other institutional programs.*

**Response:**

Nashville State provides collegiate education to all qualified applicants. For admissions policies and procedures see the online admissions section of the catalog at <http://www.nsc.edu/admissions/apply-to-nsc/>.

TBR requires that students demonstrate high school level skills before enrolling in college-level classes. Placement assessments are administered to entering students to determine if developmental courses are needed. Depending on the student's placement test scores, ACT scores, high school courses completed and/or any other relevant information, a student will be placed appropriately. After completing the final developmental studies course required by the placement assessment, students may enroll in college-level courses. The student must complete any developmental studies course with a grade of "C" or better. For placement information, see the Student Services section of the online catalog at [http://pnsweb.nsc.edu/content/resources/Student\\_Services.pdf](http://pnsweb.nsc.edu/content/resources/Student_Services.pdf).

Student grade point averages (GPA) have been compiled by the Institutional Research Department at Nashville State. The chart below shows the past five year GPA history for all Nashville State students with declared majors. As indicated, student GPAs for ACT/CIT and EETH compare positively with students institutionally. See Chart 7.6.1 Notes for declared major identification.

**Grade Point Average Chart**

Chart 7.6.1

Academic Year	Arts and Sciences	Business and Applied Arts	Health and Life Sciences	Information and Automotive Technology	Engineering Technology	NSCC Average
2008	2.69	2.54	2.75	2.68	2.57	2.67
2007	2.62	2.62	2.82	2.70	2.83	2.69
2006	2.55	2.60	2.75	2.68	2.76	2.65
2005	2.62	2.56	2.72	2.70	2.78	2.65
2004	2.64	2.55	2.73	2.76	2.71	2.67

Notes:

Academic year consists of fall, spring, and summer terms (Academic Year 2008 = fall 2008, spring 2009, summer 2009).

Declared Majors:

Arts and Sciences

AA and AS Degrees  
University Parallel

Business and Applied Arts

Business Management  
Computer Accounting  
Culinary Arts  
Healthcare Management  
Logistics Technology  
Office Administration  
Paralegal Studies  
Visual Communications

Health and Life Sciences

Early Childhood Education  
Occupational Therapy  
Police Science Technology  
Sign Language  
Social Service  
Teaching

Information and Automotive Technology

Automotive Technology  
Computer Information Systems  
Computer Networking Technology  
Computer Technology

Engineering Technology

ACT/CIT  
EETH

Student retention rates are monitored by the Institutional Research Department at Nashville State. Charts 7.6.2a through 7.6.2e indicate retention rates from fall term to fall term and the number of graduates for the past five years for declared majors in AAS degree programs.

**Student Retention Rates**  
Fall 2008 – Fall 2009  
Chart 7.6.2a

<b>Degree</b>	<b>Major</b>	<b>Fall 2008 Students</b>	<b>Fall 2008, Spring 2009, Summer 2009 Graduates</b>	<b>Fall 2009 Students</b>	<b>Percent Retained</b>
AAS	ARCH, CIVIL & CONST ENG TECH	114	13	61	60%
AAS	AUTOMOTIVE TECHNOLOGY	40	2	15	39%
AAS	BUSINESS MANAGEMENT	511	32	244	51%
AAS	COMPUTER ACCOUNTING	144	17	74	58%
AAS	COMPUTER INFORMATION SYSTEMS	140	13	70	55%
AAS	COMPUTER NETWORK TECHNOLOGY	146	26	69	58%
AAS	COMPUTER TECHNOLOGY	100	13	56	64%
AAS	CULINARY SCIENCE	125	5	61	51%
AAS	EARLY CHILDHOOD EDUCATION	200	6	94	48%
AAS	ELECTRICAL ENGINEERING TECH	101	22	47	59%
AAS	GENERAL TECHNOLOGY	187	14	74	43%
AAS	OCCUPATIONAL THERAPY ASSIST	92	17	52	69%
AAS	OFFICE ADMINISTRATION	171	23	95	64%
AAS	POLICE SCIENCE TECHNOLOGY	133	33	62	62%
AAS	SIGN LANGUAGE INTERPRETING	49	5	24	55%
AAS	SOCIAL SERVICES	71	8	32	51%
AAS	VISUAL COMMUNICATIONS	200	28	100	58%
	<b>AAS Total</b>	<b>2524</b>		<b>1230</b>	<b>55%</b>
	<b>Institution Total</b>	<b>7716</b>		<b>3195</b>	<b>41%</b>



### Student Retention Rates

Fall 2007 – Fall 2008

Chart 7.6.2b

Degree	Major	Fall 2007 Students	Fall 2007, Spring 2008, Summer 2008 Graduates	Fall 2008 Students	Percent Retained
AAS	ARCH, CIVIL & CONS ENG TECH	121	7	60	52%
AAS	AUTOMOTIVE TECHNOLOGY	37	3	13	38%
AAS	BUSINESS MANAGEMENT	485	32	201	44%
AAS	COMPUTER ACCOUNTING	147	16	64	49%
AAS	COMPUTER INFORMATION SYSTEMS	129	10	64	54%
AAS	COMPUTER NETWORK TECHNOLOGY	148	38	76	69%
AAS	COMPUTER TECHNOLOGY	114	12	56	55%
AAS	CULINARY SCIENCE	103	10	52	56%
AAS	EARLY CHILDHOOD EDUCATION	147	9	56	41%
AAS	ELECTRICAL ENGINEERING TECH	105	13	43	50%
AAS	GENERAL TECHNOLOGY	172	20	77	51%
AAS	OCCUPATIONAL THERAPY ASSIST	68	18	36	72%
AAS	OFFICE ADMINISTRATION	217	45	88	51%
AAS	POLICE SCIENCE TECHNOLOGY	133	40	49	53%
AAS	SIGN LANGUAGE INTERPRETING	37	2	20	57%
AAS	SOCIAL SERVICES	74	5	34	49%
AAS	VISUAL COMMUNICATIONS	191	20	82	48%
	<b>AAS Total</b>	<b>2423</b>		<b>1071</b>	<b>50%</b>
	<b>Institutional Total</b>	<b>7077</b>		<b>2854</b>	<b>40%</b>

## Student Retention Rates

Fall 2006 – Fall 2007

Chart 7.6.2c

Degree	Major	Fall 2006 Students	Fall 2006, Spring 2007, Summer 2007 Graduates	Fall 2007 Students	Percent Retained
AAS	ARCH, CIVIL & CONS ENG TECH	139	6	64	48%
AAS	AUTOMOTIVE TECHNOLOGY	40	7	11	33%
AAS	BUSINESS MANAGEMENT	459	59	195	49%
AAS	COMPUTER ACCOUNTING	142	14	66	52%
AAS	COMPUTER INFORMATION SYSTEMS	154	25	68	53%
AAS	COMPUTER NETWORK TECHNOLOGY	165	30	84	62%
AAS	COMPUTER TECHNOLOGY	112	27	49	58%
AAS	CULINARY SCIENCE	123	19	40	38%
AAS	EARLY CHILDHOOD EDUCATION	122	9	45	40%
AAS	ELECTRICAL ENGINEERING TECH	107	28	47	59%
AAS	GENERAL TECHNOLOGY	270	32	102	43%
AAS	OCCUPATIONAL THERAPY ASSIST	70	18	28	54%
AAS	OFFICE ADMINISTRATION	251	32	132	60%
AAS	POLICE SCIENCE TECHNOLOGY	157	20	63	46%
AAS	SIGN LANGUAGE INTERPRETING	40	14	17	65%
AAS	SOCIAL SERVICES	82	12	34	49%
AAS	VISUAL COMMUNICATIONS	177	25	87	57%
	<b>AAS Total</b>	<b>2662</b>		<b>1132</b>	<b>51%</b>
	<b>Institutional Total</b>	<b>7177</b>		<b>2877</b>	<b>40%</b>

### Student Retention Rates

Fall 2005 – Fall 2006

Chart 7.6.2d

Degree	Major	Fall 2005 Students	Fall 2005, Spring 2006, Summer 2006 Graduates	Fall 2006 Students	Percent Retained
AAS	ARCH, CIVIL & CONS ENG TECH	143	10	69	52%
AAS	AUTOMOTIVE TECHNOLOGY	49	6	20	47%
AAS	BUSINESS MANAGEMENT	517	47	232	49%
AAS	COMPUTER ACCOUNTING	148	18	66	51%
AAS	COMPUTER INFORMATION SYSTEMS	188	34	83	54%
AAS	COMPUTER NETWORK TECHNOLOGY	177	39	83	60%
AAS	COMPUTER TECHNOLOGY	133	22	64	58%
AAS	CULINARY SCIENCE	140	10	60	46%
AAS	EARLY CHILDHOOD EDUCATION	146	7	67	48%
AAS	ELECTRICAL ENGINEERING TECH	128	21	62	58%
AAS	GENERAL TECHNOLOGY	364	25	142	42%
AAS	OCCUPATIONAL THERAPY ASSIST	57	24	24	73%
AAS	OFFICE ADMINISTRATION	267	28	115	48%
AAS	POLICE SCIENCE TECHNOLOGY	143	29	67	59%
AAS	SIGN LANGUAGE INTERPRETING	41	4	21	57%
AAS	SOCIAL SERVICES	83	5	45	58%
AAS	VISUAL COMMUNICATIONS	188	20	87	52%
	<b>AAS Total</b>	<b>2912</b>		<b>1307</b>	<b>51%</b>
	<b>Institution Total</b>	<b>7198</b>		<b>2917</b>	<b>41%</b>

## Student Retention Rates

Fall 2004 – Fall 2005

Chart 7.6.2e

Degree	Major	Fall 2004 Students	Fall 2004, Spring 2005, Summer 2005 Graduates	Fall 2005 Students	Percent Retained
AAS	ARCH, CIVIL & CONS ENG TECH	159	20	69	50%
AAS	AUTOMOTIVE TECHNOLOGY	65	8	28	49%
AAS	BUSINESS MANAGEMENT	546	61	247	51%
AAS	COMPUTER ACCOUNTING	162	15	83	56%
AAS	COMPUTER INFORMATION SYSTEMS	244	43	113	56%
AAS	COMPUTER NETWORK TECHNOLOGY	178	38	99	71%
AAS	COMPUTER TECHNOLOGY	160	22	80	58%
AAS	CULINARY SCIENCE	118	11	60	56%
AAS	EARLY CHILDHOOD EDUCATION	173	10	66	40%
AAS	ELECTRICAL ENGINEERING TECH	132	30	53	52%
AAS	GENERAL TECHNOLOGY	517	36	244	51%
AAS	OCCUPATIONAL THERAPY ASSIST	48	17	18	58%
AAS	OFFICE ADMINISTRATION	260	33	129	57%
AAS	POLICE SCIENCE TECHNOLOGY	158	24	70	52%
AAS	SIGN LANGUAGE INTERPRETING	31	10	13	62%
AAS	SOCIAL SERVICES	85	1	39	46%
AAS	VISUAL COMMUNICATIONS	213	26	103	55%
	<b>AAS Total</b>	<b>3249</b>		<b>1514</b>	<b>53%</b>
	<b>Institution Total</b>	<b>7021</b>		<b>2889</b>	<b>41%</b>

### Notes:

- Fall to fall retention data is taken from the Nashville State 14<sup>th</sup> day enrollment file submitted to TBR.
- Percent Retained is based on the number of students enrolled minus the number of students that graduated to determine the number available to enroll.
- AAS student count and percentage is based on the number of students available to enroll compared to the number that actually enrolled the next fall.
- Institution Total is all degree and non-degree seeking students.

**7.7 Student Enrollment:** *There shall be evidence of an adequate number of program majors to sustain the program, and to operate it efficiently and effectively. Program enrollment shall be tracked and verified.*

The Nashville State Institutional Research Department monitors student enrollment for programs campus-wide. The chart below tracks a five year student enrollment history for ACT/CIT and EETH.

**Student Enrollment**  
Chart 7.7.1

<b>Program</b>	<b>Fall 2009</b>	<b>Fall 2008</b>	<b>Fall 2007</b>	<b>Fall 2006</b>	<b>Fall 2005</b>
ACT/CIT	125	114	121	139	143
EETH	121	101	105	107	128

Note: Chart information from the Nashville State 14<sup>th</sup> day enrollment file sent to TBR.

**7.8 Administrative Support & Faculty Qualifications:** *There must be evidence of appropriate administrative support from the institution for the Technology, Management, and Applied Engineering program/option including appropriately qualified administrators, an adequate number of full time faculty members and budgets sufficient to support program/option goals.*

**Response:**

Administrative Support for the programs seeking accreditation is demonstrated in various ways including: budget expenditures; accreditation activities and costs; professional development activities; faculty and administration personnel expenses; and equipment, materials, and supplies expenditures.

The Administrative duties for the ACT/CIT and EETH programs are managed by full-time administrators as well as program coordinators who are faculty members. In January 2009, the Business and Applied Arts (BAA) and the Information and Engineering Technologies Divisions (ITET) were merged to create the Business, Applied Arts, and Technologies Division (BAAT). The former ITET dean retired and the BAA dean was named the new BAAT dean. At the same time, a division coordinator position was created to assist the BAAT dean with management responsibilities. Administrators are also actively engaged in professional development activities, community functions, and college activities. The following individuals serve as administrators:

Ms. Karen Stevenson, Dean – Business, Applied Arts, and Technologies  
 Mr. Cary Bunt, Division Coordinator – Business, Applied Arts, and Technologies  
 Mr. Jack Wallace, Program Coordinator – ACT/CIT  
 Dr. Tim Dean, Co-Program Coordinator – EETH (ACS)  
 Mr. Richard McKinney, Co-Program Coordinator – EETH  
 Dr. Don Pelster, Co-Program Coordinator – EETH

Programs seeking accreditation are staffed to accommodate student enrollment. Some full-time ACT/CIT and EETH faculty members split their time between concentrations. In addition, due to specific expertise, a few classes are instructed by faculty that are members of other academic divisions. Since these instructors are not members of the ACT/CIT or EETH academic division, they are not included in faculty information. The chart below shows the full-time faculty members along with their main area of teaching responsibility.

**Faculty Distribution Chart**  
 Chart 7.8.1

<b>ACT/CIT</b>	
Architectural Engineering Technology	Jack Wallace
Civil and Construction Engineering Technology	Rob Donaldson
Computer-Aided Drafting	Bryan Evans Alex Smiley
<b>EETH</b>	
Automated Control Systems	Tim Dean Sam Garner
Convergence Engineering Technology Electrical Engineering Technology Electronic Engineering Technology	David Finney Joel Lavalley Richard McKinney Don Pelster Innocent Usuh

Budget appropriations indicate the significant financial support for the ACT/CIT and EETH programs. All units of the college participate in the annual budgeting process ensuring that college resources are aligned with priorities. Budget request forms which document the need for funding and its associated planning objective are submitted. All budget requests require chain of command approval. The college leadership team then presents a consensus annual budget to the president for approval. The following chart indicates the combined operating and personnel program, as well as, the institutional budget for the past three years. ACT/CIT and EETH dollar amounts shown do not include overhead allocations.

**Budget**  
Chart 7.8.2

Unit	2010	2009	2008
NSCC	\$40,633,100	\$35,532,300	\$33,390,300
ACT/CIT	\$287,800	\$333,500	\$329,400
EETH	\$692,100	\$712,200	\$706,000

**Standard:**

*Full time faculty assigned to teach courses in the Technology, Management, and Applied Engineering program/option must be appropriately qualified. Faculty qualifications shall include emphasis upon the extent, currency and pertinence of: (a) academic preparation; (b) industrial professional experience (such as technical supervision and management); (c) applied industrial experience (such as applied applications); (d) membership and participation in appropriate Technology, Management, and Applied Engineering professional organizations; and (e) scholarly activities. The following minimum qualifications for full time faculty are required (except in unusual circumstances which must be individually justified):*

*Associate Degree: The minimum academic qualifications for a regular full-time faculty member is expected to be an earned bachelor's degree in a discipline, or in certain cases for documented reasons, an associate's degree plus professional certification/licensure closely related to the faculty member's instructional assignments.*

**Response:**

A qualifications summary for full-time faculty is shown in the chart below. Complete faculty credentials including Faculty Information Sheets and resumes documenting: education; professional experience; industrial experience; organizational memberships and participation; and activities are available for team member review at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>. Nashville State policy requires instructors to be compliant with the appropriate accrediting agency standard.

**Faculty Qualifications Chart**  
Chart 7.8.3

Name	Academic Rank	Highest Related Degree	Years Teach-ing at NSCC	Years at Other Related Work	Memberships, Licensures, and Certifications
<b>ACT/CIT</b>					
Rob Donaldson	Instructor	M. Eng	3	12	Member ASCE Member ASEE
^Bryan Evans	Instructor	AAS ME	20	16	AutoCAD Certified Member ASEE
Alex Smiley	Instructor	MS EE	10	26	Member ASEE
Jack Wallace	Instructor	M. Arch	3	14	R.A. West Virginia Member ASEE
<b>EETH</b>					
Tim Dean	*Assoc. Prof.	PhD Eng	15	3	Member IEEE Member ASEE Member AGU (American Geophysical Union)
David Finney	*Assoc. Prof.	MS ET	33	41	Member ASEE
Sam Garner	*Assoc. Prof.	BS EMT	29	5	Member ASEE
Joel Lavalley	*Assoc. Prof.	BS IT	26	8	Member ASEE
Richard McKinney	*Assoc. Prof.	MS ET	27	6	Member ASEE
Don Pelster	*Professor	PhD ME	26	12	Member IEEE P.E. Tennessee Member ASEE
Innocent Usoh	*Professor	MS EE	23	5	Member ASEE

^ Mr. Evans is approved as a full-time faculty member by SACS and ABET. He holds an AAS degree from Nashville State in Mechanical Engineering Technology, is AutoCAD Certified by Autodesk, and has 16 years industry/consulting experience. Mr. Evans is taking classes at Middle Tennessee State University and needs ten semester hours to complete his BS degree in Mass Communication with an emphasis in 3D design.

\*Tenured



**Standard:**

*Policies and procedures for faculty selection, appointment, reappointment and tenure shall be clearly specified and shall be conducive to the maintenance of high quality instruction.*

**Response:**

The process for hiring full-time faculty members is consistent with TBR policy and includes a faculty search committee working with the academic dean and the Vice President for Academic Affairs. The president must approve hiring of any full-time faculty member. The hiring process is described fully in the Nashville State Affirmative Action Plan and is available for team member review under Faculty HR Policies at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

The award of tenure is recognition of the merit of a faculty member and of the assumption that he/she would meet long-term staffing needs. Tenure is awarded only to those members of the faculty who have exhibited professional excellence and outstanding abilities sufficient to demonstrate that their future services and performances justify the degree of permanence afforded by academic tenure. See Faculty Qualification Chart (Chart 7.8.4) for tenured instructor identification. Complete tenure policy is available for team member review under Faculty HR Policies at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

Promotion in rank is recognition of past achievement, future potential, and a sign of confidence that the individual is capable of greater accomplishments and of assuming greater responsibilities. TBR policy is to make promotions strictly on consideration of merit tempered by college and fiscal considerations. The purpose of this policy is to help ensure that promotions are made objectively, equitably, impartially, and as recognition of merit consistent with the following policy guidelines. See Faculty Qualification Chart (Chart 7.8.4) for instructor rank. Complete promotion policy is available for team member review under Faculty HR Policies at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**Standard:**

*Faculty teaching, advising, and service loads shall be reasonable and comparable to the faculty in other professional program areas.*

All full-time Nashville State faculty work 37.5 hours per week and are required to schedule a minimum of 30 of those hours on their door schedules for scheduled activities including classroom teaching, student advising, committee service, course preparation, and other activities designated by the divisional supervisors. These hour figures assume the typical standard teaching load of 15 teaching load credits per semester or 30 teaching load credits for an academic year. A typical NSCC schedule would include: a teaching load of 15 or more class/lab hours per semester (or equivalent scheduled hours); 10 office hours reasonably distributed throughout the faculty member's schedule, and open hours (30 hours total). Academic deans, faculty members, and program coordinators have flexibility and latitude when

developing semester schedules recognizing student needs, faculty preferences, academic program requirements and academic division standards. Complete faculty loading and scheduling guidelines are available for team member review under Faculty HR Policies at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**7.9 Facilities, Equipment & Technical Support:** *Facilities and equipment, including the technical personnel support necessary for maintenance, shall be adequate to support program/option goals. Evidence shall be presented showing the availability of computer equipment and software programs to cover functions and applications in each program area. Facility and equipment needs shall be included in the long range goals for the program.*

**Response:**

In addition to budget allocations, Nashville State utilizes student fees for major equipment and technology purchases. Students are assessed a Technology Access Fee (TAF) of \$10 per credit hour each semester. These funds are accumulated and then allocated through a request and prioritization system managed by the NSCC TAF Committee. This committee meets multiple times to set priorities and ensure purchases are in line with college needs. The following summarizes ACT/CIT and EETH TAF expenditures for the previous three academic years.

**Technology Access Fee Distribution Chart**

Chart 7.9.1

Program	2009	2008	2007
ACT/CIT	\$38,198	\$48,755	\$32,458
EETH	\$13,327	\$9,903	\$11,135

NSCC employs a full-time lab technician for the Nashville campus. The technician:

- Completes repairs, maintenance and/or calibration of laboratory equipment
- Reads diagrams, schematics, blueprints and technical manuals for repair and diagnostic information
- Orders supplies for various labs
- Performs tests and checks with electronic instruments
- Inspects, installs and/or services electronic systems
- Prepares labs for particular experiments--equipment set-up, distributing supplies, etc.
- Evaluates performance and compliance with regulations and purchase specifications
- Keeps an inventory of all equipment

To assist the ACS instructors, the Cookeville campus employs a student worker 5 hours per week as a lab technician. The Cookeville lab technician is responsible for:

- Assisting EETH faculty in the building of new lab systems or the modification of existing systems
- Ensuring labs are setup properly for student work during the semester
- Maintaining lab equipment primarily in Electrical Engineering labs
- Ensuring labs are kept clean and safe

The Computer Services Division maintains an Information Technology Plan that was originally developed by a broad-based campus committee to ensure that the plan included feedback from all campus constituencies. A classroom equipment replacement cycle developed by Computer Services is integrated into the TAF planning process.

Computer Services provides technical support to ensure the computers in faculty offices and classrooms are working properly. If a computer or software-related problem occurs, a request is sent to the Computer Services Help Desk, and the problem is corrected as soon as possible. The Computer Services Department also makes available an Open Computer Lab for students in Room C-219.

The following chart identifies lab equipment, and computer hardware and software currently used in the ACT/CIT and EETH programs.

**Lab Resources Chart**  
Nashville Campus  
Chart 7.9.2a

Equipment	Additional Information
RSR HY3002-3 Triple Output Power Supplies	Variable 0-30V DC /Constant 5V DC
Elenco XP660 Triple output Power Supplies	Variable 0-20V DC/Constant 5V DC
Elenco XP620 Power Supplies	Variable 0-20V DC
Staco Power Supplies	Variable 0-150V AC/Variable 0-150V DC
Hampden Engineering Power Supplies	Variable 0-140V AC/Variable 0-125V DC
RSR M9803 RMS Digital Multimeters	
Westward 97R Digital Multimeters	
Elenco 1700 Series Digital Multimeters	
Fluke 335 True RMS Clamp Meters	
Beckman TECH 300 Digital Multimeters	
Tektronix THM550 Tekmeters	
AEMC 1040 Megohmmeters	
Simpson 260 Analog Volt-ohm-meters	
Sencor LC75 Capacitor-Inductor Analyzers	
Goodwill Industries GVT-417 AC Millivolt Meters	
Hewlett Packard 400E AC Voltmeters	
Elenco XK-550 Analog/Digital Trainers	
Elenco PAD-234 Analog/Digital Trainers	
Logic Probes	Various manufacturers
Instek GFG-8255 Function Generators	
RSR FG-32 Function Generators	
Elenco GFG-8016 Function Generators	

Leader LFG-1300 Function Generators	
Instek GDS-820 Digital Storage Oscilloscopes	
Instek GDS-830 Digital Storage Oscilloscopes	
Tektronix 2220 Digital Storage Oscilloscopes	
Hitachi V-680 Analog Oscilloscopes	
Hitachi V1050-F Analog Oscilloscopes	
Tektronix 2215 Analog Oscilloscopes	
Heathkit Resistor Decade Boxes	
Heathkit Capacitor Decade Boxes	
Transformers	Ohmite/Staco Variable output, 0-140V AC Square D/Acme power transformers 1, 2, 10kVa Auto transformers, 2kVa
Electronic components	Resistors, carbon film/wire wound, various values Capacitors, various types, values, & voltages Inductors, various types & values IC's, TTL & CMOS Lamps, various voltages & wattages LED's, various types
Fiber Instrument Sales OVM-9299 Optical Time Delayed Reflectometer	
Fitel S121/S122 Fiber Fusion Splicers	
CSS XYZR100-80 Fiber Optic Testing Apparatus	
Fitel S325A Precision Fiber Cleavers	
Fotec Fiber Light Source & Power meters	
Fiber Instrument Sales Fiber light Source & Power meters	
Fiber Microscopes	Various manufacturers
Photon II Photonics Lab Kits with Helium Neon Lasers	
Hampden Engineering Series 100 Fractional Horsepower Motor & Generator Training System	DC Machine Synchronous Machine Three Phase Motor Induction Motor Multifunction Machine Dynamometer
Accessories for Hampden Training System	Single-Phase & Three-Phase Resistive Loads Single-Phase & Three-Phase Inductive/Capacitive loads
Hampden Three-Phase Transmission Line Simulators	

Kato Engineering Three-Phase, 1.5Hp Motor/Generators	
Simpson 390 Single-Phase Analog Wattmeters	
Sun DWM-03060 Single-Phase Digital Wattmeters	
Sun PA-036091 Digital Power Analyzers	
Hand Held Tachometers	Various manufacturers
Kempf Motor Troubleshooting Training Centers	
Allen-Bradley RSLogix SLC500 Programmable Logic Controllers	
System boards for Relay Logic Training	Three-Phase motor starters Pneumatic timed relays Latching relays Standard mechanical relays Solid state relays Electro-pneumatic controls Variable frequency drives
Lab-Volt Hydraulic & Pneumatic Trainers	
Mayline May-o-matic drafting tables	
Alvin DPX36 24" x 36" Deluxe Drawing Boards	
Leica TC307 Digital Total Stations	
Leica NA730 Surveyor Levels	
Carlson Explorer II Data Collectors	
Top Con Hiper Lite Global Positioning Systems	
Soil testing equipment	
Construction hand tools	
Forney 0-300,00 psi hydraulic press	
<b>Computers and Software</b>	<b>Additional Information</b>
Dell Optiplex GX270 computers	Microsoft Windows XP operating system LVSIM Hydraulic/Pneumatic/Simulation Software Automation Studio Electrical/Hydraulic/Pneumatic Simulation Software The Constructor Programmable Logic Simulation Software
Dell Optiplex GX270 computers	Microsoft Windows XP operating system Microsoft Office 2007 National Instruments Electronic Circuit Design Suite <ul style="list-style-type: none"> <li>• MultiSim 10</li> <li>• Utiliboard 10</li> </ul>

Dell Optiplex GX270 computers	Microsoft Windows XP operating system Allen-Bradley RSLogix SLC 500 Programmable Logic Controller Programming & Simulation Software
Dell Optiplex GX620 computers	Microsoft Windows XP operating system Microsoft Office 2007 National Instruments Electronic Circuit Design Suite <ul style="list-style-type: none"> <li>• MultiSim 10</li> <li>• Utiliboard 10</li> </ul>
Dell Precision 360 computers	Microsoft Windows XP operating system Microsoft Office 2007 AutoCad 2009 Revit Architectural 2009 Carlson 2009 Civil Suite Top Con Global Positioning System software
Dell Precision T3500 Computers	Microsoft Windows XP operating system Microsoft Office 2007 AutoCad 2009 Revit Architecture 2009 Backburner Distributed Queueing System Microsoft Visual Studio 2005 Solid Works 2009 3-D Studio Max 2009
Dell Precision 390 computers	Microsoft Windows XP operating system Microsoft Office 2007 AutoCad 2009 Solid Works 2006 Carlson Survey 2007 Carlson Roads 2007
Dell Precision 380 computers	Microsoft Windows XP operating system Microsoft Office 2007 AutoCad 2007 Solid Works 2006 JASC Paint Shop Pro 9

**Lab Resources Chart**  
Cookeville Campus  
Chart 7.9.2b

Equipment	Additional Information
Allen Bradley PLC 5 series Programmable Logic Controller	Assortment of digital I/O points, analog input and output points device-net scanner, device-net components, Flex I/O components, basic modules
Allen Bradley SCL 5 series Programmable Logic Controller	Assortment of digital I/O points, analog input and output points device-net scanner, remote I/O scanner, device-net components, Flex I/O components, basic modules

Allen Bradley 1500 Micro Logic Programmable Logic Controller	
Omron Sysmac C-200 processors	Assortment of digital I/O points, analog input and output points
Allen Bradley Panel Views	1000 series, 550 series, 650, series, 1200 series
Schneider Zelio programmable relay	
Reliance Electro-Craft IQ 2000 axis 1/2 controller	S2005 servo motor /linear screw and carriage
Allen Bradley Ultra Plus axis 1/2 controller	H2005 servo motor/linear screw and carriage
Emersion Axmia 4 axis controller	
Emersion Control Techniques Servo Driver/	MGM servo motor
Star Linear Ball Screw (various lengths)	
Baldor UM2-100 2 axis controller /	6 MTE series motor/ linear ball screw and carriage
Rhino XR series robotic arm/ controller	
Amatrol Pegasus robotic arm/ controller	
Adept Scara robot/controller/work cell	
Haas SL-10 Turning Center	
Haas SL series Tool Room Lathe	
Haas VF series Tool Room Mill	
DVT Legion 530, 542C Smart image sensors	
Parallax Basic-Stamp model B52 with 6 BOE-BOT kits	
Omron E54K, E5CK Temperature Controllers	
Cisco 2600 series router/ Cisco 2950/3500 switches	
Genco Quik STIK linear transducer	
Allen Bradley Power Flex AC Motor Drives	Reliance 1 1/2hp 3 phase AC motor
Reliance MD 60 AC Motor Drive	
Reliance GP 2000 VS Drive	
Square D ALTIVAR VF Drive	
Allen Bradley 1305 .5 hP VF Drive	
Reliance GV3000 vector Drive	



Reliance Flex-Pac DC Drive	Reliance 1 1/2hp DC motor/tachometer
Control Technique Focus 1 DC drive	
Hampden Engineering Motor Training Test Cabinet	
Hampden Engineering Motor Accessories	1/3 hp DC Machine, 3 phase 1/3 hp 3 phase AC induction motor, 1/3 hp 3 phase synchronous machine, prony brake, tachometer , RLC loads, R loads
Assortment of Single phase Transformers	Dual voltage range .2 KVA – 3 KVA
Assortment of 3 phase ac machine, dc motors, servo-motors	
Lab-Volt hydraulic, pneumatic trainer	
Fluid power components	Assortment of hydraulic, pneumatic cylinders, bang-bang robots, motors and directional control valves
Tol-O-Matic rodless actuators (various lengths)	
Lap-Volt hydraulic, Pneumatic Trainers	
Conveyors	Various lengths
Gast vacuum pump	
Westinghouse Power Factor, Phase Angle Meter	
Lead LFG-1300 function generators	
E&L CADET II Digital Trainers	
Meter-man digital VOM	
Fluke 79 digital VOM	
STACO variable AC supply	
Allen Bradley motor control center	
Dayton Blower/ 3/4 hp 3 phase motor	
Rotary index tables	
Westinghouse Power Factor, Phase Angle Meter	
Dynapar Tachometers (hand-held)	
Electronic components	Assortment of low power and high power resistors, capacitors, inductor, diodes, transistors, Tracs, SCRs, 741 op-amps, basic TTL logic gates, fix and variable DC power supplies
STACO variable AC power supply	
Baldor Grinder	

Darex Bit Tool Doctor	
DO-ALL belt sander	
Chevalier table grinder	
Sharp mill	
Sharp lathes	
Wilton drill press	
JET table drill	
Assortment of mill, lathes cutting tools	
Econ O Line sand blaster	
Millermate 300 Arc welder	
DoAll Vertical 14 inch band saw	
DoAll Horizontal band saw	
Tool Box with assortment of basic hand tools, drill bit, taps, etc.	
Starrett height gage	
Starrett depth gage	
Mitotoyo calipers	
Starrett micrometers	
<b>Compters and Software</b>	<b>Additional Information</b>
Howard Laptops Pentium 4	Microsoft Window 2000 Professional
Howard PC Pentium 4	Microsoft Windows 2000 Professional
Dell Optiplex GX 1000	Microsoft Windows 98
Dell Optiplex GX 650	Microsoft Windows XP
Dell GS5	Microsoft Windows XP
EPIC PCs,	Microsoft Windows 98
Panasonic PC projector	
OKI Microline 184 serial/parallel printers	
HP 4100 laser jet printer	
HP 5550 desk jet printer	

HP 5200dtn laser jet printer	
HP Designjet 1050c plotter	
Allen Bradley RS Logic 500 / RS Link-Lite	
Allen Bradley RS Logic 5	
Allen Bradley RS Link Gateway	
Allen Bradley Panel Builders 32	
Allen Bradley Panel Builders 1200	
Allen Bradley Ultra 2000 GML Ultra 1.1	
Emersion Motor Control Axima v2.2	
Reliance IQ Master 2000 v3.24	
Omron CX Programmer v3.2	
Zelio-Soft V1.4	
DVT Frame-Works V2.5-2.7	
Baldor Motor Control Mint Next Move v3.x	
Adept AIM 1 6 0	
Digital Works 2.0	
Cisco Packet Tracer 4.0	
Wire Shark Network Analyzer	
Pegasus II MCL v1.48.4	
Basic Stamp Editor v2.42	
Straight-Line Control Tuning 101 v3.0	
Automation Studio v3.0	
Visual Basic 2008 Express Edition	
Multisim Electronic Workbench	
Autocad 2007,2009	
SolidWorks 2008SP2.1	

**7.10 Program Goals:** *Each program shall have current short and long range goals, and plans for achieving these goals.*

**Response:**

Nashville State identifies short and long range goals for its educational programs and its administrative and educational support services; assesses whether it achieves these outcomes; and provides evidence of improvement based on analysis of those results. NSCC's mission statement serves as the guiding element for these institutional effectiveness measures. Individual units and educational programs within the college develop objectives in support of the strategic plan and consistent with their needs and priorities.

The Institutional Effectiveness Tracking System (IETS), a web-based application developed in 2005, records the unit's annual objectives. Each unit plan contains objectives and assessment measures to use for evaluating results. The IETS application is designed to enhance the sharing of goals, objectives and results across units and to enhance public accountability of improvement efforts. Assessment results are used in making budget decisions and closing the assessment loop to assure continuous improvement. Plans are reviewed systematically to assess whether or not goals are being accomplished. The IETS application for ACT/CIT and EETH will be made available for team member review in the ATMAE Resource Room.

**7.11 Program/Option Operation:** *Evidence shall be presented showing the adequacy of instruction including:*

**Standard:**

(a) *motivation*

**Response:**

NSCC provides student motivational and involvement opportunities in a diversity of ways. There are more than 20 honors, social and professional clubs and organizations active on the campus, as well as, two student publications. The Office of Student Life is responsible for these activities. Student Government Association and representatives from each student organization are encouraged to attend each month's Student Life Council. The Student Life Council promotes cooperation and communication among student organizations. The Office of Student Life also sponsors activities such as the Back to School Bash, Organization Day, Constitution Day, Drunk Driving Awareness and other Educational/Awareness Workshops. Many of the activities that are sponsored by the Office of Student Life include a Critical Thinking challenge. See the Office of Student Life section online at: <http://www.nsc.edu/student-resources/student-life/>

The ACT/CIT program sponsors the Architectural and Civil Engineering Technology Student Association. Its mission is to provide opportunities for educational advancement, career enhancement, public outreach and community service. The club sponsors guest lectures, field trips and social events throughout the school year.

The EETH program sponsors the Tennessee Beta Chapter of Tau Alpha Pi. The Tennessee Beta Chapter extends membership to students enrolled at NSCC in an engineering technology field, and have a GPA of 3.5 after completing 18 credit hours, and maintain a GPA of 3.3 after completing 48 credit hours then (s)he is eligible to become a member. The purpose of TN Beta Chapter is:

- To recognize high standards of scholarship among students in engineering technology programs and
- To promote and encourage scholastic achievement by offering outstanding engineering technology students membership in the society. The society rewards selected scholars for past achievements and accomplishments, while encouraging a lifetime of commitment to learning and scholarship.

Also, at the end of every school year the chapter awards the Dr. Frederick Burger scholarship to outstanding graduating Student(s).

**Standard:**

*and program advising of students;*

**Response:**

Technology students are advised by full-time faculty within the academic program that the student has declared as his/her major. Once a student is enrolled, the Technologies Division assigns a faculty advisor. To encourage students to communicate with their advisor, students are mailed advising postcards welcoming the student to NSCC and indicating the student's advisor and contact information.

Although not an NSCC requirement, students are strongly encouraged to meet with their advisor throughout their academic career to help ensure they meet their academic plan and address any changes. Students are open to arrange meetings with their advisor at any time during the semester and faculty members develop their schedule in recognition of advising duties. See standard 7.8 for faculty scheduling guidelines. Advising Sheets for ACT/CIT and EETH are available for team member review at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

In addition, class time is scheduled into ENGT 1000 Intro to Engr Technology for open-ended program discussions, general advising, and overall student motivation to keep the student interested in engineering technology.

**Standard:**

*(b) scheduling of instruction;*

**Response:**

Technology program schedules are developed by the faculty and program coordinator. To accommodate traditional as well as nontraditional students, the ACT/CIT and EETH programs offer day and evening classes. Part-time students can enroll in evening classes as their time permits while a recommended class schedule has been developed to give full-time students the opportunity to complete their degree in two years. Recommended schedules are incorporated into the advising sheets available for review at the ATMAE website: <http://ww2.nsc.edu/atmae2010/>.

Course assignments, homework, and projects are designed with reasonable time expectations. Courses with laboratory and/or field work exercises are planned so that students can complete the assignment within the allotted class/lab period.

**Standard:**

*(c) quality of instruction;*

**Response:**

Nashville State requires all faculty and the courses they teach to be evaluated by students at least once a year. The college administers the Individual Development & Educational Assessments (IDEA) for student course evaluations. Each faculty member is required to give this evaluation to students in all their courses during the fall or spring semesters. Evaluations are completed anonymously by the students during the final weeks of the semester. The academic deans review the evaluations and assist instructors with improvement methods when deemed appropriate. Evaluations are then returned to faculty by the beginning of the next semester so faculty members have an opportunity to review student feedback and to make any changes. An IDEA evaluation form is attached as Appendix B.

**Standard:**

*(d) observance of safety standards;*

**Response:**

Nashville State's Environmental Health and Safety Office (EHSO) is responsible for ensuring health and safety compliance. NSCC follows guidelines developed from the Occupational Safety and Health Administration (OSHA), Tennessee Occupational Safety and Health Administration (TOSHA), and the Environmental Protection Agency (EPA). Please refer to Environmental Health and Safety website: <http://nsc.edu/student-resources/student-resources-details/environmental-health-and-safety/> .

To help ensure student and faculty safety, the following steps have been implemented.

- Material Safety Data Sheets (MSDS) are located in the appropriate labs and, as recommended by the EHSO, are available for review in the NSCC email system under 'Public Folders - Material Safety Data Sheets.'

- Eye Protection is required for certain lab work as deemed appropriate by the instructor and is provided to students at no cost.
- First aid kits are available in the labs.

In addition, the faculty and lab technicians are required to read appropriate safety training documentation located on the EHSO website. To confirm completion, the faculty members and technicians sign and date the training material and it is placed in the TOSHA training notebook. The notebook is available for team member review in the ATMAE Resource Room. The following training documents are required reading for faculty members and lab technicians:

- Material Safety Data Sheets
- Hazard Communication Program
- Blood Borne Pathogens
- Ergonomics/Back Safety
- Hazardous Chemical Standard Operating Procedures
- Fire Extinguisher Training
- Safety Glasses, Chemical Splash Goggles and Face Shields
- Control of Hazardous Energy Program

**Standard:**

*(e) availability of resource materials;*

**Response:**

The Learning Resource Center (LRC) provides educational support services to students and faculty. Services provided by the LRC include online and on-ground Library services, testing center services, and online and in-person tutoring. The following chart lists the resource materials available through the NSCC Library.

**Program Resource Materials**

Chart 7.11.1

<b>Program</b>	<b>Books</b>	<b>Periodicals</b>	<b>Audiovisual</b>
<b>ACT/CIT</b>			
Architectural Engineering Technology	3424	58	299
Civil and Construction Engineering Technology	2265	88	682
<b>EETH</b>			
Automated Control Systems	366	17	13
Convergence Technology	542	39	8
Electrical Engineering Technology	560	38	207
Electronic Engineering Technology	1057	73	161

Note: Data provided by NSCC LRC.

Online databases subscribed to by the NSCC learning center are:

- EBSCO (Elton B. Stevens Company)
- TEL (Tennessee Electronic Library)
- WilsonWeb

A complete listing of all services and resources is available at the Kisber Library website [www.nsc.edu/library/index.html](http://www.nsc.edu/library/index.html).

**Standard:**

*(f) teaching and measurement of competencies (specific measurable competencies shall be identified for each course along with the assessment measures used to determine student mastery of the competencies);*

**Response:**

Course syllabi are available for team member review at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**Standard:**

*(g) supervision of instruction;*

**Response:**

Academic deans review faculty in their division annually. During the annual evaluation, full-time faculty and the dean discuss the following: student evaluations of classroom performance, professional activities, college service, and other instructional responsibilities. The previous year's Faculty Development Plan is also reviewed to determine the level of completion of the stated goals and objectives of that plan. During this meeting, the faculty member's final evaluation package is completed and signed by both parties. A new Faculty Development Plan specifying growth and development activities is mutually agreed upon, and this document is attached to the evaluation package. See Appendix C for the Faculty Evaluation Form.

**Standard:**

*and (h) placement services available to graduates.*

**Response:**

The Career Employment Center (CEC) provides career and employment information and services to students and graduates. Placement assistance is available to graduates and currently enrolled students seeking full or part-time work. Assistance is provided to employers seeking either full- or part-time employees. The CEC advertises jobs from local employers; provides resume reviews and assistance with resume construction; sponsors on-campus career fairs and events; and manages NSCC's cooperative education and internship programs. CEC information can be viewed online at: <http://www.nsc.edu/student-resources/career-employment-center/>.



**Standard:**

*Course syllabi must be presented which clearly describe appropriate course objectives, content, references utilized, student activities, and evaluation criteria.*

**Response:**

Course syllabi are available for team member review at the ATMAE Self-Study website: <http://ww2.nscs.edu/atmae2010/>.

**Standard:**

*Representative examples of student's graded work shall be available for each course.*

**Response:**

Representative examples of graded student work for the technology courses, as well as, texts and syllabi for the Gen Ed courses will be on display for team member review in the ATMAE Resource Room.

**7.12 Graduate Satisfaction with Program/Option:** *Graduate evaluations of the program/option shall be made on a regular basis (two to five years). These evaluations shall include attitudes related to the importance of the general outcomes and specific competencies identified for the program/option. Summary data shall be available for graduate evaluations of the program/option.*

**Response:**

The NSCC Institutional Research department currently administers graduate surveys; however, these surveys do not address program outcomes. Therefore, concentration-specific graduate surveys have been developed by the Technology Division and are being administered to 2008 graduates in the ACT/CIT and EETH programs. These surveys gather data related to overall program satisfaction, specific program and concentration outcomes, and employment information. Graduate surveys will be administered on a regular basis. Summary data will be available for team member review in the ATMAE Resource Room.

**7.13 Employment of Graduates:** *Placement, job titles, and salaries of graduates shall be tracked on a regular basis (two to five years). The jobs held by graduates shall be consistent with program/option goals. Summary data shall be available for the employment of graduates.*

Nashville State's Career Employment Center tracks graduate placement, job titles, and salaries. Data are collected through graduate surveys. The ACT/CIT and EETH programs enjoy a near 100% related-employment rate for graduates. See Graduate Related-Employment Chart 7.13.1.

**Graduate Related-Employment Chart**  
Chart 7.13.1

<b>Program</b>	<b>2008</b>	<b>2007</b>	<b>2006</b>	<b>2005</b>	<b>2004</b>
ACT/CIT	88%	100%	85%	100%	89%
EETH	100%	88%	87%	95%	92%

Note: Compiled from Career Employment Center data submitted to TBR.

The following chart indicates the positions held by 2007 and 2008 ACT/CIT and EETH graduates:

**Graduate Position Titles**  
Chart 7.13.2

<b>ACT/CIT</b>	
Architect Intern	Head of Drafting Department
CAD Drafter	Instrument Man
Designer 3D	Owner-General Manager
Drafting Associate	Structural Designer
Draftsman/Estimator	Water Plant Lead Operator
Engineer & Surveyor Technician	Water Sprinkler Designer
<b>EETH</b>	
Computer Field Technician	Inside Diameter Welder
Electrical Engineer Technician	Installer
Electrical Installer	Maintenance
Electrician	Maintenance Technician
Electrician Helper	Process Engineer
Electronics Technician	RF Engineer
Engineer Technician	Shop Technician
Engineering	Staking Engineer
HVAC Service and Controls	Technician
Industrial Electrician	Tower Technician

Note: Compiled from Career Employment Center data.

The following chart indicates the average annual salary for program graduates that are employed in a related field.

**Graduate Related-Employment Salary Chart**  
Chart 7.13.3

Program	2008	2007	2006	2005	2004
ACT/CIT	\$30,960	\$25,740	\$31,029	\$30,983	\$30,780
EETH	\$39,773	\$35,835	\$39,878	\$37,719	\$31,158

Note: Compiled from Career Employment Center data.

**7.14 Job Advancement of Graduates:** *The advancement of graduates within organizations shall be tracked on a regular basis (two to five years) to ensure promotion to positions of increasing responsibility. Summary data shall be available for the job advancement of graduates.*

**Response:**

Please refer to Standard 7.12. Summary data will be available for team member review in the ATMAE Resource Room.

**7.15 Employer Satisfaction with Job Performance:** *Employer satisfaction with the job performance of graduates shall be tracked on a regular basis (two to five years) including employer attitudes related to the importance of the specific competencies identified for the program. Summary data shall be available showing employer satisfaction with the job performance of graduates.*

**Response:**

The NSCC Career Employment Center is responsible for employer contacts including surveys. The current employer survey has been modified to include program- and concentration-specific data. Summary data will be available for team member review in the ATMAE Resource Room.

**7.16 Graduate Success in Advanced Program:** *If a goal of the program/option is to prepare students for advanced studies, then the success in the advanced study programs shall be tracked and confirmed. Summary data shall be available showing success in advanced programs.*

**Response:**

This standard does not apply as it is not an objective of the programs seeking accreditation.

**7.17 Student Success in Passing Certification Exams:** *If a goal of the program/option is to prepare students to pass certification examinations, then the success in passing these examinations shall be tracked and confirmed. Summary data shall be available showing success in passing certification exams.*

**Response:**

This standard does not apply as it is not an objective of the programs seeking accreditation.

**7.18 Advisory Committee Approval of Overall Program:** *An industrial advisory committee shall exist for each program/option and shall participate in general outcome and competency validation and the evaluation of overall program success. If more than one program of study or program option is available, then appropriately qualified industrial representatives shall be added to the committee or more than one committee shall be maintained. Policies for the advisory committee shall exist that include: (a) criteria for member selection; (b) procedures for selecting members; (c) length of member appointment; (d) committee responsibilities; (e) frequency of meetings (at least one per year); and (f) methods of conducting business.*

**Response:**

The ACT/CIT and EETH programs maintain active advisory committees consisting of business leaders and subject matter experts in their respective fields. ACT/CIT utilizes one committee while EETH maintains two. One EETH advisory committee serves the Nashville campus and a separate committee for the Automated Control Systems concentration was created to better serve that region. To preserve continuity, NSCC encourages service longevity. As a result, many committee members serve for extended time periods. Advisory committee guidelines including committee roles, guidelines, expectations, etc. are available for team member review at the ATMAE Self-Study website: <http://ww2.nsc.edu/atmae2010/>.

**Standard:**

*A roster of advisory committee members showing terms and minutes of advisory committee meetings shall be made available to the visiting team.*

**Response:**

Current advisory committee rosters and meeting minutes for the past three years are available for team member review in the ATMAE Resource Room.

**7.19 Outcome Measures Used to Improve Program:** *Evidence shall be presented showing how multiple outcome measures (Graduate Satisfaction with Program/Option, Employment of Graduates, Job Advancement of Graduates, Employer Satisfaction with Job Performance, Graduate Success in Advanced Programs, Student Success in Passing Certification Exams, and Advisory Committee Approval of Program) have been used to improve the overall program/option. Evidence that program stakeholders participate in this process must be demonstrated.*

**Response:**

The technology programs invite feedback from all internal and external stakeholders and strive to make program improvements based on that feedback. The following charts identify program improvements.

**Outcome Measures Improvement Matrix**  
 Architectural, Civil, and Construction Engineering Technology  
 Chart 7.19.1

Architectural, Civil, and Construction Engineering Technology Program		
Action	Reason	Evidence
Withdraw from ABET and seek ATMAE accreditation.	ACT/CIT Advisory Committee recommendation and approval.	Advisory Committee minutes for spring 2009.
Reviewed and redesigned program outcomes and curricula.	ACT/CIT Advisory Committee recommendation and approval to meet ATMAE requirements.	Advisory Committee minutes for fall 2009.
Develop ACT/CIT technical certificate for Cookeville campus.	Request from Upper Cumberland Homebuilders Association (UCHBA) to meet regional employer needs. Donated \$25,000 for scholarship endowment.	New 10 semester-hour technical certificate in construction basics scheduled to be offered fall 2010. Status: in-process. See proposal and UCHBA minutes at ATMAE website.
<i>Technology Day</i> was held fall 2008 and fall 2009 on the NSCC campus to inform students of the opportunities available in Engineering Technology. ACT, CIT & CAD programs exhibited examples of student and professional work and program information.	Paulina Combow, Perkins IV grant coordinator, informed the Advisory Council of grant activities and encouraged their participation.	Fall 2008 Advisory Council meeting minutes.  Todd Hilbert AIA of Earl Swenson Architects and Jared Cobb of Sessions Paving Company spoke at the event.  See marketing materials at ATMAE website.
ACT/CIT, CAD and EETH participated in planning and staging the '09 and '10 ASCE High School Student Bridge Design Competition.	Garland Rose PE encouraged involvement with the American Society of Civil Engineers (ASCE) bridge contest.	Spring 2007 Advisory Council meeting minutes.
Developed new syllabi template for Business, Applied Arts & Technologies Division.	ATMAE Self-Study identified improvements that needed to be made in course syllabi for ACT/CIT and EETH programs.	New syllabi format will be implemented fall 2010. Syllabi will be available for team member review in the ATMAE Resource Room.

Architectural Engineering Technology Concentration		
Action	Reason	Evidence
Changed Curriculum to include ACT 1391 the History of Architecture as a requirement for the program rather than an elective.	Advisory members agreed that substituting the History of Architecture for English 1020 (report writing) would add technical knowledge and still require written and verbal skills to be developed. Casey Tice emphasized that the <i>Greek orders of Architecture</i> be included in the history class.	Fall 2007 Advisory Council meeting minutes. Approved by NSCC Curriculum Committee December 2007.
Installed Timberline software in CIT classroom for use in ACT 2440 Specifications and Estimating spring 2009.	Advisory Committee recommendation to keep classes up-to-date with industry standard software.	Fall 2007 Advisory Council meeting minutes.
ACT 2242 Architectural Design Process was the focus of using case studies to strengthen industry partnerships. WGBH of Boston has documented the case study of a wellness center for the NSCC campus. Industry representatives provided technical advice and acted as consultants to the students.	The ACT/CIT program participates with the Nashville State Community College's <i>Problem Based Case Studies Project</i> and the <i>Innovation in Teaching and Learning project</i> .  The project is funded by a grant from the Natural Science Foundation and received a 2008 Academic Excellence Award from the Tennessee Board of Regents.	The final production was published by NSCC and WGBH on the internet in the fall of 2009. See ( <a href="http://www.makinglearningreal.org">www.makinglearningreal.org</a> ) The ACT 2242 student project was on display at the fall 2008 Advanced Technological Education Conference in Washington D.C. ACT, CAD and EETH faculty attended. In addition a student, Jared Whitson, from the program attended and presented the project.
ACT 1341 Commercial Design, Drafting and Codes / 2242 Architectural Design Process created design called "Charettee" fall '09.	The ACT/CIT program participates with the Nashville State Community College's <i>Problem Based Case Studies Project</i> and the <i>Innovation in Teaching and Learning project</i> .	Tara Meyers AIA, Eric Sholtz AIA and Casey Tice AIA participated as technical consultants with a PBCL project
Civil and Construction Engineering Technology Concentration		
Action	Reason	Evidence
Installed Carlson surveying software in CIT classroom fall 2009.	Advisory Committee recommendation to keep classes up-to-date with industry standard software.	Fall 2007 Advisory Council meeting minutes.
Installed MS Project in the CIT classroom for use in CIT 2114 Construction Management course.	Advisory Committee recommendation to keep classes up-to-date with industry standard software.	Fall 2007 Advisory Council meeting minutes.

Rob Donaldson became a member of American Society of Civil Engineers	Garland Rose PE encouraged involvement with the American Society of Civil Engineers.	Spring 2008 Advisory Council meeting minutes.
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**Outcomes Measures Improvement Matrix**  
Electrical Engineering Technology  
Chart 7.19.2

Electrical Engineering Technology Program		
Action	Reason	Evidence
Withdraw from ABET and seek ATMAE accreditation.	EETH Advisory Committee recommendation and approval.	Advisory Committee minutes spring 2009.
Reviewed and redesigned program outcomes and curricula.	EETH Advisory Committee recommendation and approval to meet ATMAE requirements.	Advisory Committee minutes fall 2009.
Developed new syllabi template for Business, Applied Arts & Technologies Division.	ATMAE Self-Study identified improvements that needed to be made in course syllabi for ACT/CIT and EETH programs.	Syllabi will be implemented fall 2010 and will be available for review in the ATMAE Resource Room.
Automated Control Systems Concentration		
Action	Reason	Evidence
ACS advisory board created in Spring 2009.	EETH faculty collaboration identified need to receive feedback from community. Advisory board includes representatives from industry and education in the region.	Advisory Committee meeting minutes spring 2009.
An Introduction to programming component added to EETH 1400. The BASIC Stamp II is used to teach digital logic as implemented on a microcontroller.	Student assessment analysis. Advisory committee recommendation and approval.	Advisory Committee meeting minutes spring 2009.
Added AXIMA servo controller integrated with a DVT machine vision system as project option in EETH 2380 class.	Employer donated AXIMA equipment to meet community employment training need.	EETH 2380 Computer Integrated Lab course assignment. See ATMAE website.

Assoc. Professor certified to teach CISCO I curriculum in Summer 2008. The CICSO I curriculum ties well with EETH 2360 – Industrial Communications.	Communications with local industries (Cummins Filtration, Automation Tool Company, Integral Automation) regarding the prevalence of LAN technology on factory floor.	EETH 2360 scheduled to be taught fall 2010.
Added DeviceNet control of hydraulic components option in controls lab. This component is used in EETH 2350, EETH 2360, and IMC 2015.	Communications with local industries (Cummins Filtration, Automation Tool Company, Integral Automation) regarding the prevalence of LAN technology on factory floor.	EETH 2350 Graphical Machine Interfaces lab assignment 5. See ATMAE website.
EETH 2340 – Programmable Motion Controllers added to curriculum and CIS 2215 – BASIC Programming for Engr. Tech removed. Both courses are programming courses. However, EETH 2340 is more oriented to automated systems.	Advisory Committee recommendation and approval.	Advisory Committee minutes fall 2009.
Applied for NSF grant in conjunction with Tennessee Tech University (TTU) Electrical and Computer Engineering department. The grant is focused on renewable energy and laboratory collaboration between TTU and NSCC-Cookeville.	Request from TTU to develop partnership with NSCC. Will better serve TVA and Army Corp of Engineers representing a large employment base in region.	NSF grant information on ATMAE website. Status: pending NSF approval.
<b>Convergence Engineering Technology Concentration</b>		
<b>Action</b>	<b>Reason</b>	<b>Evidence</b>
Convergence concentration created for fall 2009.	Research indicated that community should have convergence technology program to meet employer needs. Advisory Committee agreed.	Fall 2007 Advisory Committee minutes and TBR proposal. See TBR proposal at ATMAE website.



Electrical Engineering Technology Concentration		
Action	Reason	Evidence
Added emphasis to reinforce the student's understanding of the difference between over-current protection and over-voltage protection in EETH 1210 Electronic Circuits and EETH 2010 Industrial Elec. Controls.	Student assessment analysis. Question regarding an over-voltage protection device was a high miss item on the capstone exam.	Capstone exam question went from 29% correct score to 75% correct score after emphasizing material in relevant classes.
Logistics Technology program developed for fall 2009. RFID technology will be taught as a component in the Logistics Program housed in Business Management.	Advisory Committee members agreed that RFID technology was needed in industry.	Fall 2007 Advisory Committee minutes.
Electronic Engineering Technology Concentration		
Action	Reason	Evidence
Purchased surface mount repair stations to be incorporated into EETH curriculum.	Communications with local industries (Assurion and Communications Test Design) regarding employment training need.	2010 TAF request and approval # 1053 to purchase two surface mount repair stations for EETH labs. See TAF approval form at ATMAE website.
Added one credit hour (from 3 to 4) to EETH 2250/2255 Fiber Optics and Cabling/Lab.	To add strength to cabling component in EETH 2250/2255.	Fall 2007 Advisory Committee minutes. Curriculum Committee approved spring 2008.

**Appendix A**  
Request for Evaluation of Transfer Credit Form

**Appendix B**  
IDEA Student Survey Form

**Appendix C**  
Faculty Evaluation Form