

CURRICULUM STANDARD

Effective Term
Spring 2012
[2012*01]

Curriculum Program Title

Scientific Graphics Technology

Code

A40360

Concentration

(not applicable)

Curriculum Description

The Scientific Graphics Technology curriculum provides instruction in graphical techniques for understanding and communicating information. These techniques are used in scientific, technical, and design fields such as medicine, earth sciences, mathematics, engineering, and architecture. Graphics software usage and construction are emphasized.

Core courses cover visualization (information display), computer graphics, and 2-D/3-D design and analysis software. Students also receive instruction in computing, mathematics, art, psychology, and communication skills. Advanced courses are available in data visualization, design visualization, and graphics programming.

Graduates are prepared to provide visualization support services for engineers, scientists, and other technical specialists. Computer graphics programming is another career opportunity. The skills acquired in this curriculum may also enhance the marketability of a graduate in an existing technical career.

*Curriculum Requirements**

[for associate degree, diploma, and certificate programs in accordance with 23 NCAC 02E.0204 (3)]

- I. General Education.** Degree programs must contain a minimum of 15 semester hours including at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics. Degree programs must contain a minimum of 6 semester hours of communications. Diploma programs must contain a minimum of 6 semester hours of general education; 3 semester hours must be in communications. General education is optional in certificate programs.
- II. Major Hours.** AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work experience, including cooperative education, practicums, and internships, may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit. *(See second page for additional information.)*
- III. Other Required Hours.** A college may include courses to meet graduation or local employer requirements in a certificate, diploma, or associate in applied science program. These curriculum courses shall be selected from the Combined Course Library and must be approved by the System Office prior to implementation. Restricted, unique, or free elective courses may not be included as other required hours.

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

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

Major Hours

[ref. 23 NCAC 02E.0204 (3)]

- A. Core.** The subject/course core is comprised of subject areas and/or specific courses which are required for each curriculum program. A diploma program offered under an approved AAS program standard or a certificate which is the highest credential level awarded under an approved AAS program standard must include a minimum of 12 semester hours credit derived from the subject/course core of the AAS program.
- B. Concentration** (if applicable). A concentration of study must include a minimum of 12 semester hours credit from required subjects and/or courses. The majority of the course credit hours are unique to the concentration. The required subjects and/or courses that make up the concentration of study are in addition to the required subject/course core.
- C. Other Major Hours.** Other major hours must be selected from prefixes listed on the curriculum standard. A maximum of 9 semester hours of credit may be selected from any prefix listed, with the exception of prefixes listed in the core or concentration. Work experience, including cooperative education, practicums, and internships, may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit.

Scientific Graphics Technology A40360

	AAS	Diploma	Certificate
Minimum Major Hours Required	49 SHC	30 SHC	12 SHC
A. CORE Required Courses: ART 121 Two-Dimensional Design 3 SHC ART 122 Three-Dimensional Design 3 SHC CSC 133 C Programming 3 SHC CSC 233 Adv C Programming 3 SHC CSC 249 Data Struct & Algorithms 3 SHC MAT 271 Calculus I 4 SHC MAT 280 Linear Algebra 3 SHC SGR 110 Scientific Graphics 3 SHC SGR 131 Comp Graphics Concepts 4 SHC SGR 141 Intro to Visualization 4 SHC SGR 142 Data Visualization I 3 SHC SGR 161 Intro to 3-D Design 3 SHC SGR 162 Advanced 3-D Design 3 SHC SGR 233 Graphics Programming I 3 SHC SGR 234 Graphics Programming II 3 SHC SGR 242 Data Visualization II 3 SHC SGR 280 Visualization Project 4 SHC Required Subject Areas: None	55 SHC	NR	
B. CONCENTRATION (Not applicable)			
C. OTHER MAJOR HOURS <i>To be selected from the following prefixes:</i> ART, CIS, COE, CSC, MAT, and SGR <i>Foreign language courses (including ASL) that are not designated as approved other major hours may be included in all programs up to a maximum of 3 semester hours of credit.</i>			