

NAIT Accreditation Self-Study Report

For
Computer Graphics Technology

Baccalaureate Level

In compliance with the
2003 Accreditation Handbook

Submitted in partial fulfillment of the requirements
for initial accreditation

Submitted to:
The National Association of Industrial Technology
Board of Accreditation

Submitted by:
The Department of Computer Graphics Technology

February 20, 2006

Purdue University
College of Technology
West Lafayette, Indiana
47907-2021

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Institutional Self-Study Report

I. The On-Site Visit

A. Date of the Proposed Visit: March 29 to 31, 2006

B. The Visiting Team

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C. Proposed On-Site Visit Agenda

The following agenda was developed for the visit chair to review. Please let the Department of Computer Graphics Technology know what changes or additions are needed.

Arrival	March 29, 2006		
<i>Time</i>	<i>Location</i>	<i>Purpose</i>	<i>Personnel</i>
1:00	INDY airport	Arrival	NAIT Team
2:00		Visit team drives to WL	Team: All
3:00	Purdue Memorial Union	Hotel check-in	Team: All
4:00	Purdue Memorial Union	Team caucus	Team: All
5:00	Tour Knoy Hall		Team: All
6:00	Sarge Oak City Center	Reception/Dinner with Select faculty	Team: All
7:30	Knoy 352	Organizational meeting with visit coordinator and department head	Team: All
9:00	Purdue Memorial Union	Team caucus	Team: All

<i>Time</i>	<i>Location</i>	<i>Purpose</i>	<i>Personnel</i>
Day 1	March 30, 2006		
6:45-7:30	PMU Sagamore Room	Breakfast with visit CGT advisors and department head	Team: All members
8:00-8:30	Hovde 100	Visit Provost Sally Mason	Team: All
8:45-9:15	Knoy 469	Visit Dean Dennis Depew College of Technology	Team: All
9:30-10:00	Knoy 352	Visit Associate Dean Mary Sadowski	Team: All
10:15-10:45	Knoy 352	Visit COT Business Officers Lary Troutner and Rhonda Jones	Team Member: _____
11:00-11:30	Knoy 352	Visit with Department Heads and TCN Lonnie Bentley, William Krug Niaz Latif, David Sigman Kerry Arnold	Team Member: _____
11:30-11:45	Knoy 355	Visit Documentation Room	Team Member: _____
12:00-12:45	PMU Lafayette Room	Lunch with CGT Faculty	Team: All
12:45-1:20	PMU Lafayette Room	Interview CGT Faculty as a group or sampled individuals	Team: All
1:30-2:45	Knoy B019	CGT 245 Lecture observation Morales	Team Member: _____
1:30-2:15	Stewart Center 128	Visit Envision Center Dr. Bertoline	Team Member: _____
2:30-3:15	SCHL 109	Interview Admissions Assistant Director Al Hefner	Team member: _____
3:30-4:20	Knoy B019	CGT 256 Lecture observation S. Miller	Team Member: _____
4:30-5:00	Knoy 256	Meet with undergraduate students, graduate students, and alumni	Team Member: _____
5:00-5:30	Knoy 256	Pizza or sandwiches with students	Team: All
6	Knoy 352	Team caucus	Team: All
7	Purdue Memorial Union	Report planning	Team: All

<i>Time</i>	<i>Location</i>	<i>Purpose</i>	<i>Personnel</i>
Day 2	March 31, 2006		
7:30-8:30	Purdue Memorial Union	Breakfast with Undergrad & grad coordinators	Team: All
9-9:20	Stewart Center 318	Faculty and Advisory Board Introductions	Team: All
9:30-10:15	Stewart Center 318	Meet with CGT Advisory Board	Team: All
11:00-11:30	POTR 155	Interview Library Administration Michael Fosmire, Amy Van Epps	Team member: _____
11:00-11:30	Stewart Center	Visit Center for Career Opportunities Timothy Luzader	Team member: _____
11:00-11:30	SCHL 3 rd floor	Interview Financial Aid Carol Cooper	Team member: _____
12:00-12:45	PMU Lafayette Room	Lunch with Advisory Board and CGT faculty	Team: All
1:00	Knoy 256	Meeting with Department Head	Team: Dr. Fahmy
1:00	Knoy 256	Report Preparation	Team: All
2:30	Knoy 469	Exit Report in Dean's office	Team: All
3:45	Transportation to INDY airport	Visit team drives to airport	
7:00	Flights	Indy Airport	

D. Current Accreditation Status of Programs

This is the initial accreditation application for the Computer Graphics Technology baccalaureate degree program housed in the Department of Computer Graphics Technology in the College of Technology at Purdue University West Lafayette. The Department of Industrial Technology BS degree in Industrial Technology is currently NAIT accredited.

II. General Information

A. The Institution

Purdue University is an international leader in technology, engineering, and agricultural education. It is Indiana's link to the land-grant system, originating with the Morrill Act in 1862 to teach "agriculture and the mechanic arts." The university has also built a solid reputation in the areas of education, management, health sciences, and the humanities.

The university's reputation is founded upon its faculty and the accomplishments of its graduates. Purdue ranks among the 25 largest colleges and universities in the nation. The West Lafayette Campus contains 141 major buildings on 647 acres including one of the few university-owned-and-operated airports in the country. Another 17,000 acres are devoted to agriculture.

During its 143 years, Purdue has grown from 39 students to more than 38,712 on its West Lafayette Campus and an additional 30,073 enrolled at regional campuses and through Statewide Technology Programs.

Purdue feels a special obligation to make its expertise available to the citizens and companies of the state, the nation, and the world. Purdue recognized that a robust national and world economy means a robust university and therefore eagerly assists in diverse ways to help developing countries.

Diversity and opportunity characterize the university today. Students representing all 50 states and 130 foreign countries are enrolled in its 12 schools. Nearly 5,700 courses are offered in more than 200 specialties.

Among Purdue's 250,000 alumni are Nobel Prize winners, astronauts (including the first man on the moon), three U.S. Secretaries of Agriculture, literary figures, journalists, and college and corporation presidents. Specific information related to the institution follows.

1. Name and Address of Institution:

Purdue University
West Lafayette, IN 47907

2. Number of Students Enrolled: The number of students enrolled at Purdue University is as follows:

<i>Fall Semester 2005</i>	<i>Enrollment</i>
Undergraduate	
Full-Time	29,196
Part-Time	1,679
Graduate	
Full-Time	4,877
Part-Time	2,055
Professional	
Full-Time	895
Part-Time	10
TOTAL FULL-TIME	34,968
TOTAL PART-TIME	3,744
Total FTE	37,533

3. Full-Time Equivalent Faculty: 1,742 (includes Instructor, Assistant professor, Associate Professor and Professor fall 2004)

4. Operating Budget:

The Purdue University Current-Year and Five-Year History of the operating budget are presented as follows:

<i>Year</i>	<i>Operating Budget</i>
2005-2006	\$1,634,817,787
2004-2005	\$1,526,537,034
2003-2004	\$1,403,600,000
2002-2003	\$1,122,400,000
2001-2002	\$1,015,400,000
2000-2001	\$938,800,000

5. Institution Accrediting Organization(s):

North Central Association of Colleges and Schools

Association of American Universities (2000)

Accreditation Board for Engineering and Technology

Aeronautics and Astronautics

Agricultural Engineering

Chemical Engineering

Civil Engineering

Computer and Electrical Engineering

Construction Engineering

Electrical Engineering

Electrical Engineering Technology

Electrical Technology

Industrial Engineering

Materials Engineering

Mechanical Engineering

Mechanical Engineering Technology

Mechanical Technology

Nuclear Engineering

Surveying Engineering

Accreditation Commission for Programs of Hospitality Administration

Restaurant, Hotel, and Institutional Management

American Animal Hospital Association

Veterinary Medicine

American Assembly of Collegiate Schools of Business

Krannert Graduate School of Management and School of Management

American Association of Marriage and Family Therapy

Marriage and Family Therapy

American Association of Veterinary Laboratory Diagnosticians

Animal Disease Diagnostic Laboratory

American Chemical Society

Chemistry

American College of Veterinary Surgeons

Residency Program in Surgery-School of Veterinary Medicine
 American Council for Construction Education
 Building Construction and Contracting
 American Council on Pharmaceutical Education
 Pharmacy and Pharmacal Sciences
 American Dietetic Association
 Coordinated Dietetic Program
 American Psychological Association
 Clinical Psychology
 American Society of Landscape Architects
 Landscape Architecture
 American Speech-Language and Hearing Association
 Audiology and Speech Sciences
 American Veterinary Medical Association
 Doctor of Veterinary Medicine and Veterinary Technology
 Council on Social Work Education
 Social Work
 Federal Aviation Administration
 Aviation Technology
 Indiana Department of Education
 Teacher Education
 Institute of Food Technologists
 Food Science
 Joint Commission of Accreditation of Health Care Organizations
 Purdue University Student Health Center
 National Association of Industrial Technology
 Industrial Technology
 National Association of Schools of Theater
 Theatre
 National Athletic Trainers Association
 Athletic Training
 National Council for the Accreditation of Teacher Education
 Teacher Education
 National League for Nursing
 Nursing
 Society of American Foresters
 Forestry and Natural Resources

6. History of NAIT Accreditation:

The history of NAIT Accreditation at Purdue University is as follows:

BS Industrial Technology Initial Accreditation	1994
BS Industrial Technology Re-accreditation	1998
BS Industrial Technology Re-accreditation	2004
BS Computer Graphics Technology (Seeking Initial Accreditation)	2006

7. Administration of the Institution:

Head:	Dr. Martin C. Jischke, <i>President</i>
Chief Academic Officer:	Dr. Sally K. Mason, <i>Provost</i>
Financial Officer:	Dr. Morgan R Olsen, <i>Executive Vice President and Treasurer</i>

8. Major Academic Units within the Institution:

Purdue University is organized into the following Academic Units:

College of Agriculture
College of Consumer and Family Sciences
College of Education
College of Engineering
School of Health Sciences
College of Liberal Arts
School of Management
School of Nursing
Schools of Pharmacy & Pharmaceutical Sciences
College of Science
College of Technology
School of Veterinary Medicine

The following allied academic agencies are also part of the academic administrative structure of Purdue University:

Center for Instructional Services
Division of Conferences
International Programs
Office of Admissions
Office of the Registrar
University Libraries

9. Institutional Mission and Goals:

Under the leadership of President Martin Jischke, Purdue University has developed a Strategic Plan for the period 2002-2006 clearly identifying the institution's mission and goals. For the purposes of this accreditation review, the Purdue University Strategic Plan is summarized as follows:

The mission of Purdue University is to serve the citizens of Indiana, the United States and the world through:

Discovery that expands the realm of knowledge
Learning through dissemination and preservation of knowledge
Engagement through exchange of knowledge

The complete Strategic Plan is documented in Appendix B. The following is a succinct list of the institution's goals.

GOAL 1 — DISCOVERY:	Achieve and sustain preeminence in discovery.
GOAL 2 — LEARNING:	Attain and preserve excellence in learning through programs of superior quality and value in every academic discipline.
GOAL 3 — ENGAGEMENT:	Effectively address the needs of society through engagement.

10. Relationship of Institution to Superior Governing Body:

Purdue University is a state-supported institution governed by a 10-member Board of Trustees, which sets policy for the operation of the institution. The chief administrative officer of the university is the president, who is appointed by the trustees and who delegates each administrative office with appropriate duties and responsibilities.

B. Administrative Unit(s) Housing Computer Graphics Technology

1. Name and Address of Administration Unit:

Department of Computer Graphics Technology
College of Technology
Knoy Hall of Technology, Room 363
Purdue University
West Lafayette, IN 47907-2021

2. Names of Deans and Department Head:

Dr. Dennis Depew, *Dean*
Dr. Mary Sadowski, *Associate Dean*
Dr. Michael O'Hair, *Associate Dean*
Dr. Melissa Dark, *Assistant Dean*
Dr. Marvin Sarapin, *CGT Department Head*

3. Names of Other Departments in Administrative Unit (*College of Technology*):

The program applying for initial NAIT accreditation is the BS degree in Computer Graphics Technology, administered by the Department of Computer Graphics Technology which is one of eight academic units in the College of Technology at Purdue University, West Lafayette, Indiana. Please note that the Industrial Technology degree program administered by the Department of Industrial Technology is already NAIT accredited.

4. Name of Program Head(s):

The College of Technology is composed of eight academic departments. The department name, department head's name and accreditation agency or status for each is identified in the following table.

<i>Department Name</i>	<i>Department Head</i>	<i>Accreditation</i>
Aviation Technology (AT)	Dr. Thomas Carney	CAA
Building Construction Technology (BCM)	Prof. Steven Schuette	ACCE
Computer & Information Technology (CIT)	Prof. Lonnie Bentley	TAC-IEEE (under review)
Computer Graphics Technology (CGT)	Dr. Marvin Sarapin	NAIT (under review)
Electrical & Computer Engineering Technology (ECET)	Prof. Robert Herrick	TAC-ABET
Industrial Technology (IT)	Dr. Niaz Latif	NAIT
Mechanical Engineering Technology (MET)	Dr. John Hartin	TAC-ABET
Organizational Leadership and Supervision (OLS)	Prof. William Krug (Interim)	Under Program Review

5. Names and Titles of Others with Program Administration and/or Coordination Responsibility:

Prof. Judith Birchman, *CGT Undergraduate Program Coordinator and Schedule Deputy*
 Dr. Nathan Hartman, *CGT Graduate Program Coordinator*

6. Titles of Degrees, Programs, and Concentrations for Which Accreditation Is Being Requested:

BS in Computer Graphics Technology

The Department of Industrial Technology was granted NAIT re-accreditation for a period of six years in November 2004 for the BS degree in Industrial Technology with options in Industrial Technology and Industrial Distribution. This application seeks initial accreditation of the BS in Computer Graphics Technology offered by the Department of Computer Graphics Technology.

Upon successful accreditation for CGT, the Computer Graphics Technology Department requests that the NAIT Board of Accreditation put the Industrial Technology baccalaureate degree options and the Computer Graphics Technology baccalaureate degree program onto the same re-accreditation cycle with a joint accreditation self-study and a single on-campus visit, as provided for in the NAIT accreditation standards. The College of Technology Organization Chart showing the relationship of the two departments is presented in Appendix A.

7. Background and History of the Department of Computer Graphics Technology at Purdue University:

Engineering graphics and mechanical drawing courses have been taught at Purdue University since the early 1870s. The history of the predecessors of the degree-granting CGT Department begins with World War II. Starting in late 1940's, Purdue University and the University of Illinois, Champaign/Urbana, were both heavily involved in the development and support of production illustration programs aimed at enhancing design and manufacturing efforts in the area of national defense. The eventual outgrowth of the university's experience with these efforts was the establishment of a two-year AAS degree program in Industrial Illustration Technology (IIT) under Prof. R. Carpenter in the early 1960s. This was in response to expressed industrial needs and requirements following several years of engineering extension education.

Until 1955, the graphics program at Purdue University was located in the General Engineering Department as the Engineering Graphics Department (EG) under Civil Engineering. In July 1983, the department became the Department of Technical Graphics (TG), transferred into the School of Technology, and moved into the third floor of the newly constructed Knoy Hall of Technology building.

This move into the School of Technology coincided with an advance in the field from manual to digital technology. A combination of the need for an expanded curriculum to accommodate the new technologies and the need for a four-year degree to provide for career mobility in industry resulted in the development of a Bachelor of Science degree in 1991. The department's name was changed to the Department of Computer Graphics Technology (CGT) in July 1998.

Today, Computer Graphics Technology prepares visually oriented students for careers in creating and managing the production of computer graphics within a wide range of industries. Students work collaboratively in computer labs to master graphics techniques and concepts and management skills. Students can choose to generalize in applied computer graphics technology or to develop more in-depth knowledge and skills in areas such as interactive multimedia development; technical animation; virtual product design graphics; architectural and construction graphics; or scientific visualization. This self-study submitted to the National Association of Industrial Technology Board of Accreditation in partial fulfillment of accreditation consideration is the program's self-examination of how the current BS in Computer Graphics Technology meets the 2003 Accreditation Handbook Standards published by the National Association of Industrial Technology. Data collected concerning program graduates were based on BS graduates since 2002.

III. Compliance with Standards

6.1 Preparation of Self-Study Report

Self-Analysis: *The Self-Study Report shall follow the guidelines and be completed by a representative portion of the institution's administrative staff, teaching faculty, and students.*

This self-study was prepared by the Department of Computer Graphics Technology, one of eight academic departments in the College of Technology at Purdue University, West Lafayette, to seek NAIT accreditation of the baccalaureate degree in Computer Graphics Technology. It was prepared under the 2003 NAIT guidelines for accreditation of baccalaureate degree programs by a representative group of faculty, staff, administrators, students, and advisory board members within the College of Technology and the Department of Computer Graphics Technology.

6.2 Philosophy and Objectives

6.2.1 *Mission:* *The department, college, and institutional missions shall be compatible with the approved definition of Industrial Technology.*

The mission of the Computer Graphics Technology baccalaureate degree program in the College of Technology at Purdue University, West Lafayette, is to prepare visually oriented students for careers in creating and managing the production of computer graphics within a wide range of industries. The vision of the CGT faculty is to provide the preeminent program for the study of applied computer graphics technology. This mission is clearly documented in departmental literature.

6.2.2 *Program Definition:* *The major program definition and purpose shall be compatible with the approved definition of Industrial Technology.*

The Computer Graphics Technology baccalaureate degree housed in the College of Technology on the West Lafayette campus of Purdue University has both a program definition and a purpose that are compatible with the approved definition of Industrial Technology. Students studying Computer Graphics Technology work collaboratively in computer labs to master graphic techniques and concepts, as well as management skills. Students can choose to generalize in applied computer graphics technology or develop more in-depth knowledge and skills in areas such as interactive multimedia development; animation and spatial graphics; virtual product design graphics; or architectural and construction graphics technology.

The CGT baccalaureate is a technical managerial program combining elements of the disciplines of art, science, and technology in focusing on applications of visual information. Many alumni enjoy careers and are successful in a wide range of settings in business, industry, and education.

6.2.3 *Program Acceptance:* *Each major program shall be understood and accepted by representative groups within the internal university community and the external business and industrial community.*

The Bachelor of Science in Computer Graphics Technology in the College of Technology at Purdue University, West Lafayette, is well understood and accepted by a

wide array of groups internal and external to the university. The Purdue University Strategic Plan outlines a clear vision of the road taken by Purdue University for reaching preeminence as a world-renowned, publicly supported institution of higher education. The College of Technology, which celebrated its 40th anniversary in 2005, is well understood internal to the university and in the external business and industrial community. This understanding is partly why the college has grown to be the third largest on the West Lafayette campus.

The BS in Computer Graphics Technology is known for preparing visually oriented students for careers in creating and managing the production of computer graphics within a wide range of industries. Major companies related to the CGT department's signature areas seek CGT students for internships and employment. Faculty members conduct their learning, discovery, and engagement agendas both internal and external to the university, contributing greatly to the acceptance of the CGT program.

Participation of CGT students and faculty in service learning projects also contributes to the program's understanding and acceptance. In addition, faculty and students give exposure to the CGT degree program when working with the Envision Center, Information Technology at Purdue (ITAP), the PLM Center of Excellence, the Advance Manufacturing Center, e-Enterprise Center, Technology Assistance Program (TAP), Discovery Park, and many other internal and external constituents.

Program acceptance has also been demonstrated by the support given to the program by major organizations such as Boeing, DaimlerChrysler, Electronic Arts, General Motors, Industrial Light & Magic, Lucas Arts, Midway Amusement Games, and The Society of Manufacturing Engineers just to name a few. Program graduates working in business and industry have made major gifts-in-kind and cash awards to the CGT program, further demonstrating external program acceptance. CGT faculty members have been very active nationally and internationally with their learning, engagement, and discovery agendas. Undergraduate and graduate students come to West Lafayette from all over the country and the world to continue their education as evidence of the CGT program's national and international stature.

6.2.4 Program Goals: *Each major program shall have (1) clearly written short- and long-range goals and objectives, which are consistent with the mission statements; and (2) plans for achieving them.*

A strategic planning process guides all academic units and programs at Purdue University. On November 2, 2001, the Purdue Board of Trustees adopted a five-year strategic plan to make Purdue University a preeminent university with strategies to advance quality in all areas, lead the world in basic and applied sciences and engineering, and contribute to societal progress, especially in Indiana. A strategic plan defines an institution's goals and objectives and provides the basis for systematic and continuous improvement. "This plan will take not only Purdue, but also the state of Indiana, to the next level of excellence," said Purdue President Martin Jischke. "This is more than just an academic exercise. Purdue is employing good management practices, defining its mission and setting measurable objectives. This is critical: Opportunity is limitless but resources are finite. Purdue cannot be all things to all people, and it must know its mission so it can use resources wisely." (http://www.purdue.edu/oop/strategic_plan/)

The strategic planning process extends to the colleges and schools within the university. The College of Technology has developed an extensive Strategic Plan for the 2003-2007 time frame that outlines planning goals and details baseline metrics and targets for achieving specific accomplishments with the following four priorities:

1. Hire and retain outstanding faculty and staff.
2. Continue the development of effective and relevant curricula that prepare graduates for initial and career-long success in areas of industry need.
3. Develop scholarship and applied research opportunities.
4. Increase fund-raising and alumni development initiatives.

The full College of Technology Strategic Plan and the University Strategic Plan are presented in Appendix B. To further implement the university and college plans, each department has developed its strategic plans for reaching the next level of development. The CGT Strategic Plan is guided by the foundation of the University and College Strategic Plans and establishes baseline metrics and targets in a full array of activities critical to the CGT Department. Listed here are the five priority goals of the Computer Graphics Technology Department:

1. Recruit and retain outstanding faculty and staff to support Computer Graphics Technology learning, discovery, and engagement.
2. Continue to develop effective and relevant undergraduate curricula to prepare graduates for initial and career-long success in areas of industry need which enable learners to acquire core competencies in critical thinking, global communication skills, information literacy, visual information technology, business practices, and research methods.
3. Maintain and expand a program to enhance CGT faculty performance in learning, discovery, and engagement.
4. Maintain and expand a program for alumni and CGT patron development.
5. Maintain and expand Computer Graphics Technology Graduate Education.

Budget allocation, faculty annual performance review, departmental annual progress review, and review of the department head are all tied to the planning and achieving of the strategic outcomes of this planning process in the areas of learning, discovery, and engagement. The Purdue University, College of Technology, and Computer Graphics Technology Strategic Plans are presented in Appendix B.

6.3 Major Program(s)

6.3.1 **Program Name:** *Each major program and/or program option shall have appropriate titles (Titles such as business, engineering, or education that imply the focus of the program is in a related field of study are not appropriate).*

The baccalaureate degree program seeking initial NAIT accreditation in this report is named Computer Graphics Technology and is administered by the Department of Computer Graphics Technology which is housed in the College of Technology on the West Lafayette campus of Purdue University. The CGT BS degree program does not have options.

6.3.2 **Program Level:** *The major program shall lead to the baccalaureate degree, and not less than the junior and senior years of baccalaureate-level study shall be offered by the institution seeking accreditation. Appropriate lower-division requirements may be offered by the same institution or may be transferred from other institutions including community colleges and technical institutes.*

The Computer Graphics Technology major program seeking NAIT accreditation is a BS degree program housed in the College of Technology at Purdue University on the West Lafayette campus. In its early history, the department's degree program was limited to the associate degree level. Although the associate degree in CGT is still on the books for the West Lafayette campus, virtually all students on the West Lafayette campus seek the baccalaureate degree in CGT that is being submitted for NAIT accreditation consideration. A limited number of students graduate with the associate degree in Computer Graphics Technology as their terminal degree or change to another major for the remainder of their four-year career choice.

The reader should be aware that the College of Technology has a Statewide Technology (SWT) component, and four locations currently offer the associate degree in Computer Graphics Technology. The locations include Kokomo, New Albany, Richmond, and South Bend. These SWT locations are housed on Indiana University campuses and have a Purdue University Technology program. The reader with Internet access can find more information concerning SWT at the following location: http://www.tech.purdue.edu/cot_statewide/index.cfm.

The WL CGT department head administers the academic program at the locations in addition to West Lafayette. The CGT SWT faculty members are reviewed for appointment, reappointment, tenure, and promotion as part of the CGT Purdue University faculty but are tenured at a location. In the fall 2004, the Department of Computer Graphics Technology employed a NAIT consultant (Dr. John Sutton). Based on the consultant's recommendations, the CGT Department and the College of Technology administration decided to limit this initial accreditation application to the Computer Graphics Technology baccalaureate degree program housed on the West Lafayette campus.

6.3.3 Program Definition: *The major program may have more than one option, specialization, or concentration; but specific course requirements for each option shall be clearly specified, and all program options shall meet or exceed NAIT standards. Certain standards, such as follow-up studies of graduates, may not be appropriate for new options within established major programs, and a waiver may be granted by the Board of Accreditation upon the recommendation of the visiting team.*

The current Computer Graphics Technology baccalaureate degree program seeking NAIT accreditation does not contain formal options or concentrations, although the previous curriculum did. The Computer Graphics Technology department at Purdue University eliminated the former BS degree with program options beginning fall 2004. The current advising sheet showing the BS degree requirements is presented in Appendix C.

6.3.4 Program Emphasis: *Primary emphasis in the major program shall reflect the technology of contemporary industry.*

The Computer Graphics Technology baccalaureate degree program at Purdue University prepares visually oriented students for careers in creating and managing the production of computer graphics within a wide range of industries. Students work collaboratively in computer labs to master graphic techniques and concepts and management skills. Students can choose to generalize in applied computer graphics technology or develop more in-depth knowledge and skills in areas such as interactive

multimedia development; animation and special graphics; virtual product design graphics; or architectural and construction graphics.

The faculty in the CGT department strives to assure that the curriculum and instruction reflect the technology of contemporary industry related to the field of applied computer graphics technology. This has been accomplished by seeking input from program alumni, employers, and advisory board members, as explained in other sections of this report. The curriculum model shown in Appendix C has been developed to communicate the theoretic basis of the field.

6.3.5 Foundation Requirements: *Major programs shall be a minimum of 120 semester hours (or equivalent) and must meet the minimum foundation requirements shown in Table 6.1. Programs may exceed the maximum foundation requirements specified in each area, but appropriate justification shall be provided for each program and/or program option that exceeds the maximum limits. A specific list of courses and credit hours that are being counted toward each category shall be included in the Self-Study Report.*

The BS in Computer Graphics Technology in the College of Technology at Purdue University, West Lafayette, requires 123 credit hours for graduation. The CGT Curriculum Committee analyzed the Computer Graphics Technology baccalaureate degree program course requirements in preparation for accreditation by the National Association of Industrial Technology. The program’s self-analysis of how it meets or exceeds the NAIT accreditation Minimum Foundation Requirements is presented in the following table.

Table 6.1 Foundation Requirements Self-Analysis

<i>Categories</i>	<i>Required Hours</i>	<i>CGT</i>	<i>Compliance Self-Analysis</i>
General Education	18-36	18	Meets Standard
Mathematics	6-18	11	Meets Standard
Physical Science	6-18	7	Meets Standard
Management	12-24	18	Meets Standard
Technical	24-36	48	Exceeds Standard
Electives	6-18	21	Exceeds Standard

The General Education component of the CGT baccalaureate degree program requires 18 semester hours of courses. The requirements are shown in the following table.

General Education (18)

<i>Semester</i>	<i>Credits</i>	<i>Course #</i>	<i>Course Name</i>
1	3	English	Selective
2	3	Comm114	Speech Communications
3	3	Psy120	Elementary Psychology
4	3	Econ210	Principles of Economics
5	3	English	Selective
5	3	Communication	Selective

The Mathematics component of the CGT baccalaureate degree program requires 11 semester hours of courses. The requirements are shown in the following table.

Mathematics (11)

<i>Semester</i>	<i>Credits</i>	<i>Course #</i>	<i>Course Name</i>
1	5	Ma159	Precalculus
2	3	Ma221	Calculus for Technology I
6	3	Statistics	Statistics elective

The Physical Science component of the CGT baccalaureate degree program requires 7 semester hours of courses. The requirements are shown in the following table. In addition, concepts from Physical Science are included in CGT course work.

Physical Science (7)

<i>Semester</i>	<i>Credits</i>	<i>Course #</i>	<i>Course Name</i>
3	4	PHYS 216	General Physics I
4	3	Science	Selective

The Management component of the CGT baccalaureate degree program requires 18 semester hours of courses. The requirements are shown in the following table.

Management (18)

<i>Semester</i>	<i>Credits</i>	<i>Course #</i>	<i>Course Name</i>
1	3	CGT 101	Introduction to Computer Graphics Technology
6	3	OBHR 300	Management of Human Resources
7	3	CGT 411	Contemporary Problems in CGT
7	3	CGT 450	Professional Practice
7	3	MGMT 455	Legal Background of Business I
8	3	Management	Elective

The Technical component of the CGT baccalaureate degree program requires 48 semester hours of courses. This component exceeds the NAIT curriculum minimum by 12 credits. The CGT degree program is housed in the College of Technology, where all technical degrees are structured, and require a greater depth and breadth of technical development of graduates than the NAIT curriculum maximum. The requirements are shown in the following table.

Technical (48)

<i>Semester</i>	<i>Credits</i>	<i>Course #</i>	<i>Course Name</i>
1	3	CGT 111	Design for Visualization & Communication
1	3	CGT 112	Sketching for Visualization & Com
2	3	CGT 116	Geometric Modeling for Visualization & Com
2	3	CGT 141	Internet Fundamentals of Dev & Technology
2	3	CPT 175	Visual Programming
3	3	CGT 211	Raster Imaging for Computer Graphics
3	3	CGT	Selective
4	3	CGT 216	Vector Imaging for Computer Graphics
4	3	CPT 267	Introduction to C++ Programming
5	6	CGT	Selective
5	3	Technical	Elective
6	3	CGT	Selective
7	3	Technical	Elective
8	3	CGT	Selective
8	3	Technical	Elective

The Electives component of the CGT baccalaureate degree program requires 21 semester hours of courses exceeding the NAIT curriculum minimum by 3 credits. However, the Purdue University degree in CGT requires 123 credits for graduation rather than the 120-credit standard at many other institutions. The requirements are shown in the following table.

Electives (21)

<i>Semester</i>	<i>Credits</i>	<i>Course #</i>	<i>Course Name</i>
3	3	Liberal Arts	Elective
4	3	Free	Elective
6	3	Liberal Arts	Elective
6	3	Free	Elective
7	3	Free	Elective
8	3	Liberal Arts	Elective
8	3	Free	Elective

6.3.6 Course Sequencing: *There shall be evidence of appropriate sequencing of course work in each major program to ensure that advanced level courses build upon concepts covered in beginning level course work.*

The sequencing of courses in the Computer Graphics Technology baccalaureate degree program is published in the College of Technology Catalog and presented on the department web site. An eight-semester course sequence is standard for all degree-seeking students. The department's academic advisor maintains a progress record for each student until the student graduates or leaves the program.

The department policy is for students interested in pursuing the BS in Computer Graphics Technology to complete the major course work in the freshman year with a minimum grade of C in each course and a GPA of 2.5 to gain admission to the CGT Professional Level (300 and 400 level courses). There is also a sequence of course prerequisites. The advising sheet and a document showing the course sequence prerequisites are presented in Appendix C.

6.3.7 Application of Mathematics and Science: *Appropriate applications of the principles of mathematics and science shall be evident in technical course work.*

The Computer Graphics Technology baccalaureate degree program includes ample and appropriate applications of the principles of mathematics and science in its technical course work. The curriculum theory forming the basis for Computer Graphics Technology blends the fields of Aesthetics, Science, and Technology. The faculty in the CGT degree program firmly believes that the emphasis on applying the principles of Mathematics and Science in Computer Graphics Technology course work is what makes such study appropriate for technology students at the university level. For example, the skill of programming realistic special effects in computer graphics technology requires application of mathematical and scientific phenomena.

The CGT students' ability to apply mathematics and science can be documented in recent class projects that have used applied computer graphics technology to model scientific principles including sound, motion, light, color, texture and many others. Faculty members are routinely called on to work collaboratively with their students in applying computer graphic techniques in solving Mathematical and Scientific applications. Examination of course documentation and interviews of CGT faculty and students will clearly demonstrate the program's compliance with this standard.

6.3.8 **Computer Applications:** *The major program shall include instruction on computer applications and the use of computers for information retrieval and problem solving.*

The name of the degree program seeking initial NAIT accreditation is Computer Graphics Technology. Virtually every course in the CGT major includes extensive computer applications with a high degree of emphasis on student problem solving. Computer applications are pervasive in the CGT baccalaureate degree program. The CGT faculty is careful that instruction goes beyond the teaching of how to use specific software tools, making data visualization and problem solving the ultimate instructional priority.

6.3.9 **Communications:** *Oral presentations and technical report writing shall be evident in course requirements.*

Oral presentations and technical report writing are evident in courses in the Computer Graphics Technology baccalaureate degree program in the general education and major course work. Students take courses requiring oral presentations and technical report writing (such as Com 114 Speech Communication and their English and Communication Selectives).

In the CGT major course work, students make oral presentations and do technical report writing, starting with CGT 101 Introduction to Computer Graphics Technology and terminated in the capstone courses CGT 411 Contemporary Issues in Computer Graphics and CGT 450 Professional Practices. Various additional courses in the CGT major require written and oral reports. Activities in the major are completed by individual students and students as members of groups. In addition, students who elect to take a co-op or internship experience are required to make additional written and oral presentations.

In addition, Purdue University maintains an On-Line Writing Lab (OWL) <http://owl.english.purdue.edu/> providing a range of resources to help students further develop written communication skills. Examples of student reports will be available during the campus visitation.

6.3.10 **Industrial Experiences:** *Each major program shall include appropriate industrial experiences such as industrial tours, work-study options, and cooperative education, or senior seminars focusing on problem-solving activities related to industrial situations. The industrial experiences shall be designed to provide an understanding of the industrial environment and what industry expects of students upon employment.*

The BS in Computer Graphics Technology includes appropriate industrial experiences for students. Faculty members routinely conduct tours and field trips in CGT classes for students to observe business and industrial practices. Computer Graphics Technology students participate in cooperative education and internships related to their career objectives to gain industrial experience on an optional basis. Problem solving is incorporated into most courses in the CGT major to give students experience applying computer graphics technology to practical applications.

Two senior courses in the major, CGT 411 Contemporary Problems in Applied Computer Graphics and CGT 450 Professional Practices in CGT, focus specifically on problem solving using a simulation model, whereby students work with sponsors in small groups to apply computer graphics technology to solve problems in business,

government, and education. This service learning approach is designed to give students exposure to the business and industrial applications of computer graphics technology.

The CGT department offers both Cooperative Education and Internships in Computer Graphics Technology. Both are relatively new to the department, with Cooperative Education beginning in fall 2001, and Internships starting in fall 2003. The major difference between the two programs is that Cooperative Education provides two years of work experience, whereas the Internship normally provides only one work session (be it summer session, fall semester, or spring semester).

Currently, Cooperative Education is a five-year plan offering both work experience and learning, in which the student alternates periods of employment in the computer graphics industry, with periods of attendance at Purdue University. Actual work in computer graphics becomes an integral part of the educational process. Work assignments will vary from production work, such as page layout, design/drafting, sketching, and illustrating, to graphic design, 3D modeling, animation, and multimedia production. Responsibilities in work assignments will grow with experience and demonstrated ability. The Purdue Board of Trustees will award students who successfully complete the Co-op program and qualify for a degree from Purdue a Co-op certificate of completion. Cooperative education in CGT has just recently become available to students in the CGT department. For the reader with Internet access, additional information concerning Cooperative Education in the CGT department can be found on the Web at <http://www.tech.purdue.edu/cgt/career/coop.cfm>. Additional information concerning the University Cooperative Education Program can be found at <http://coop.www.ecn.purdue.edu/Coop/Welcome/>.

An Internship is a less formal means of obtaining work experience and usually is completed by the students during the summer session or during either the fall or spring semester. Although credit may be earned for the Internship, this is not the main goal. Because of the brevity of the Internship, as compared to the Cooperative Education, most students perform routine responsibilities in one particular department within one specific company.

Although Internships were only recently approved, the CGT faculty has found a combination of the experiences documented above to be very helpful in giving students real-world experience in applying computer graphics technology, and employing students' technical and management skills in problem solving as it relates to business, government, and educational environments. Students have reported that these activities help them in meeting their employment goals. The CGT department is studying the feasibility of expanding student participation in the experiences.

Faculty members in the Computer Graphics Technology Department routinely engage business and industry and bring real-world projects into the classroom. Several CGT faculty members have been successful in securing internally and externally funded projects conducted on campus that have provided students with experience in applying problems-solving related to computer graphics technology while providing a benefit to the corporate partner. In this model, students remain on campus but interact with corporations in relation to the individual project.

6.3.11 Competency Identification: *Competencies shall be identified for each major program, including all available options, which are relevant to the employment opportunities available to graduates.*

The BS in Computer Graphics Technology degree program at Purdue University on the West Lafayette campus employs a course-embedded competency model. Each CGT course includes six to nine behaviorally stated objectives written in the form that

states: “Upon completion of this course the student will be able to. . .” For the purpose of the most recent review, the competencies were organized and presented for the required common components of the CGT degree program and the four signature areas of computer animation and special graphics, interactive multimedia development, architectural and construction graphics, and virtual product design graphics from which students take elective and selective courses in the baccalaureate degree program. The CGT BS degree competencies are organized as follows:

- Foundation Course Outcomes
- Professional Course Outcomes
- Elective/Selective Course Outcomes

A competency validation study was conducted in preparation for this accreditation self-study, as explained in standard 6.3.12. A comprehensive list of the course-embedded competencies of the BS in Computer Graphics Technology is presented in Appendix D.

*6.3.12 **Competency Validation:** Validation of major program outcomes/student competencies shall be an ongoing process and shall be accomplished through a combination of external experts, an industrial advisory committee(s), and follow-up studies of program graduates. Documentation of this validation shall be provided in the Self-Study Report.*

The BS degree program in Computer Graphics Technology at Purdue University uses a course-embedded competency model, as explained in standard 6.3.11. Each course in the program designated with the CGT prefix has a Web page, including the course syllabus (please see <http://www.tech.purdue.edu/cgt/academics/coursepages.cfm> for a complete list). Specifically, each syllabus identifies the course competencies in the form of Mager-style behaviorally stated objective for the course. During the 2004-2005 school year, a comprehensive list of outcomes was compiled from the individual courses, and plans were made for a validation review in preparation for this self-study.

The plans for determining the CGT degree program’s competencies were reviewed by a National Association of Industrial Technology curriculum consultant (Dr. John Suttons) during a campus pre-accreditation visit in fall 2004. A CGT Distinguished Alumni (Dr. Jon Duff), who is a faculty member at the NAIT accredited Purdue University College of Technology Peer Institution (Arizona State University), reviewed the CGT department’s plans for competency validation in the spring 2005. As a result, an extensive self-study of the program’s competencies was undertaken.

During the spring 2005 and fall 2005 semesters, an extensive study of the course-embedded CGT outcomes was conducted. The stated outcomes for each CGT course were reviewed by the CGT program faculty and organized into an assessment instrument for validation. The outcomes were organized to include the required courses in the computer graphics technology baccalaureate degree program and the elective or selective CGT courses in the signature areas of computer animation and spatial graphics, interactive multimedia development, architectural and construction graphics, and virtual product design graphics.

A comprehensive self-study of the course-embedded outcomes was conducted in the spring of 2005. A Likert-type assessment instrument was administered to program faculty, industrial advisors, select program employers, and alumni of the program. The faculty and the Industrial Advisory Board reviewed the results of this outcomes study during the fall 2005 semester. The fall 2005 Industrial Advisory Board meeting was devoted to reviewing the results of this study. Based on faculty and advisory board

consensus, several course-embedded outcome statements were edited, eliminated, or added. This process resulted in a comprehensive list of validated program outcomes in the form of competency statements at the course level. A follow-up study of program graduates to further validate the stated program competencies and to assess the graduates' feeling of how the program enabled the stated outcomes is scheduled for the spring semester 2006. The validated program competencies are presented in Appendix D.

6.3.13 *Program Development, Revision, and Evaluation:* *Major program development, revision, and evaluation shall involve currently enrolled students, individuals responsible for instruction, program graduates, and representative employers.*

The faculty in the Department of Computer Graphics Technology has the responsibility for program development, revision, and evaluation employing feedback from currently enrolled students, program graduates, representative employers, and members of the Industrial Advisory Board. The assessment model explained in standard 6.16.1 of this report uses the concept of continual process improvement, collecting input from a wide range of constituents. Information is collected from currently enrolled students using a variety of methods including administering feedback instruments, conducting exit interviews, and conducting discuss sessions with students and leaders of the various student groups related to the department.

Faculty members keep in contact with program graduates and representative employers to monitor the needs of business, government, and education where computer graphics technology is employed. Formal surveys of programs graduates, employers, and Industrial Advisory Board members are administered routinely. Potential employers visit with students and faculty on campus. These processes have facilitated the change in focus of the department's degree offerings from its early history in Engineering Graphics, through its intermediate emphasis on Industrial Illustration, into the current dynamic program in Applied Computer Graphics Technology which is under review for NAIT accreditation. The faculty accomplished the program development, revision, and evaluation with input from students, program graduates, employers, and advisory board members. Today, the CGT department uses an outcomes-based assessment model that seeks input from various sources explained above, as the faculty evolves the degree offering in Computer Graphics Technology.

6.3.14 *Transfer Course Work:* *Institution and/or department policies shall be used to evaluate course work transferred from other institutions. All programs/options, including those with a significant amount of transfer course work, must meet the minimum credit hour foundation course requirements (Tables 5.1 and 6.1) in each category.*

Students transfer into the Computer Graphics Technology baccalaureate degree program in the College of Technology at Purdue University, West Lafayette, via three methods:

- CODO
- Transfer from SWT
- Transfer from other institutions

Approximately a third of the students enrolled in the major CODO (Change of Degree Objective) sometime during their academic career at Purdue University within the College of Technology or Purdue University. Approximately six students per year transfer into CGT from a College of Technology SWT (Statewide Technology) sites at

the completion of their associate degree requirements to complete the baccalaureate degree on the West Lafayette Campus. In the case of SWT transfers, associate degree courses are modeled after WL campus courses. SWT faculty report to and are supervised by the West Lafayette CGT department head. CODO information is presented on the department's Web page at <http://www.tech.purdue.edu/cgt/>.

A very limited number of students are admitted as transfers from other institutions under the current department enrollment management plan. Course transfer evaluations at Purdue University are handled on an individual student basis. The senior academic advisor in the CGT program is responsible for conducting transfer student course evaluations with the supervision of the department head. When questions arise concerning the suitability of appropriate equivalent transfer courses, the CGT Education Policy Committee and the CGT Curriculum Committee are consulted to resolve any issues brought to their attention. All students transferring into the CGT baccalaureate degree program must meet the minimum credit hour foundation course requirements identified in this report. Transfer information is presented on the department's Web page at the following location <http://www.tech.purdue.edu/Cgt/transfer.pdf>.

6.3.15 Upper Division Course Work: *Students shall successfully complete a minimum of 15 semester hours of junior or senior level major courses at the institution seeking program accreditation.*

According to Purdue University policy, each student must have 32 credit hours of 300 or 400 level courses for graduation. The BS in Computer Graphics Technology requires 18 semester hours of junior or senior level major courses. The self-analysis showing how the CGT degree meets this standard is presented in the following table.

<i>Prefix</i>	<i>Number</i>	<i>Name</i>	<i>Credits</i>
OBHR	300	Mgmt of Human Resources	3
MGMT	450	Legal Background for Business 1	3
CGT	411	Contemporary Problems in CGT	3
CGT	450	Professional Practices in CGT	3
CGT	Selective	300 level or above	6
<i>Total</i>			18

6.3.16 Program Publicity - Adequate and Accurate Public Disclosure: *Institutions shall broadly and accurately publicize, particularly to prospective students: (a) Industrial Technology program goals and objectives, (b) preadmission testing or evaluation requirements and standards, (c) assessment measures used to advance students through the program(s), (d) educational achievement rates of graduates, and (e) fees and other charges.*

The Computer Graphics Technology baccalaureate degree program, housed in the College of Technology at Purdue University, has a full range of activities that adequately and accurately provide public disclosure. These measures publicize the BS in Computer Graphics Technology to intended students and the public through publications at the Purdue University, College of Technology, and CGT department level. Purdue Marketing and Information Services designs and produces traditional and electronic publications that feature the College of Technology and the Department of Computer Graphics Technology. Purdue University has extensive World Wide Web presence at the

University, College of Technology, and Department of Computer Graphics Technology levels. The resources are documented on the following Web pages:

- Purdue University: <http://www.purdue.edu>
- College of Technology: <http://www.tech.purdue.edu/>
- CGT Department: <http://www.tech.purdue.edu/Cgt/>

The Computer Graphics Technology department's goals and objectives are incorporated in the CGT Strategic Plan that is published on the department's Web page. The location http://www.tech.purdue.edu/cgt/contribute_downloads/strategic_plan.pdf publishes the CGT Strategic Plan.

As stated in an earlier standard, all CGT students in the West Lafayette BS degree program are first admitted into the CGT freshman experience and must apply to the upper division program. The application and admissions criteria are presented in Appendix E. Incoming student SAT scores are presented in the CGT Strategic Plan. The location http://www.tech.purdue.edu/cgt/career/grad_placement.cfm publishes student placement data for the last six years.

Tuition and fees are documented on the Purdue URL. General admissions information is located at the College of Technology site. Other samples of program publicity will be available during the campus visit.

6.3.17 *Legal Authorization:* *Only institutions legally authorized under applicable state law to provide degree program beyond the secondary level and that are recognized by the appropriate regional accrediting agency are considered for accreditation.*

The North Central Association of Colleges and Schools (NCA) has accredited Purdue University since 1913. As part of its most recent 10-year accreditation review, the West Lafayette Campus underwent a comprehensive evaluation on November 15-17, 1999, by a team representing the Commission on Institutions of Higher Education of the NCA. The evaluation team reviewed the campus's ongoing ability to meet NCA's general institutional requirements and criteria for accreditation. Based on the team's report and recommendations, NCA has extended the West Lafayette Campus accreditation without reservation or stipulation until 2009-2010.

6.4 Instruction

6.4.1 *Study Guides:* *Course Syllabi which clearly describe appropriate course objectives, content, references utilized, student activities, evaluation criteria, and a range of examples of student's graded work shall be available for each course.*

The Department of Computer Graphics Technology has employed a standard template for course syllabi since 1999. Each course syllabus clearly describes the course objectives, content, references utilized, student activities, and evaluation criteria. The department maintains extensive gallery space on the walls of the 3rd floor of Knoy hall to display the work typically produced in many courses in the degree program.

The CGT faculty maintains extensive class web sites including digital versions of the "Study Guides." The CGT Web site has a link that leads to a table including all CGT major courses. Each course has a link to its web site which is a digital study guide showing evidence of compliance with this accreditation standard. For the reader with Web access, the URL (<http://www.tech.purdue.edu/cgt/academics/coursepages.cfm>)

documents the CGT course Web sites. CGT course supervisors are responsible for maintaining the individual course Web sites and keeping course syllabi current.

A binder for each CGT major course showing examples of students' graded work will be displayed in the documentation room for the on-campus accreditation visit. Additional information to evaluate this standard is presented in Appendix F.

6.4.2 **Reference Materials:** *Appropriate reference books, library materials such as periodicals, audiovisual materials, and computer application software (when appropriate) shall be utilized for each course or series of courses to supplement textbooks or course packs.*

Reference books, library materials, and computer software are widely available and used appropriately in the Computer Graphics Technology baccalaureate degree program. Purdue University, the College of Technology, and the Department of Computer Graphics Technology have a wide and rich array of resources available to the CGT major on the West Lafayette campus, including a system of libraries, audiovisual, and computing assets. These assets are routinely used to help students meet the objectives of the individual courses in the degree program.

There are many subject specialty libraries and an undergraduate library on the West Lafayette campus functioning as one unified library system. Library system information is available at the following Web sites:

- Purdue Library System <http://www.lib.purdue.edu/libraries/>
- John W. Hicks Undergraduate Library <http://www.lib.purdue.edu/ugrl/>
- Siegesmund Engineering Library
<http://gemini.lib.purdue.edu/ENGRdatabases/index.cfm>

In 2001, three existing groups—the Purdue University Computing Center (PUCC), Management Information (MI), and Telephone Services—were united under the direction of a newly created Office of the Vice President of Information Technology in the organization called Information Technology at Purdue, or ITAP. ITAP has a full array of services in support of instruction, including resources related to this standard. The Web site showing more information can be viewed at http://www.itap.purdue.edu/index_f.cfm

As documented in another section of this report, the College of Technology computing resources are managed by the Technology Computer Network TCN (<http://www.tech.purdue.edu/tcn/>). TCN manages the hardware and software in College of Technology Computer Labs. (If the reader has this document electronically, please follow the link to see lab use schedules.):

- College of Technology, [KNOY 310A](#)
- College of Technology, [KNOY 316A](#)
- College of Technology, [KNOY 316B](#)
- College of Technology, [KNOY 376](#)
- CGT (Advanced Graphics and Visualization Laboratory) Knoy 346

Another important and unique resource related to this standard is the Envision Center for Data Perceptualization at Purdue that opened in the summer of 2004 under the directorship of Dr. Gary Bertoline (a senior CGT faculty member). The Envision Center boasts a team of diverse scientists, Purdue faculty, and other professionals who engage in some of the most advanced visualization research in the world. Visualization computing is organized under the Office of the Vice President for Information

Technology and serves the computational visualization needs of the greater Purdue University community. The mission of visualization computing is to serve, support, and collaborate with faculty and industry to be preeminent in visualization computing in teaching, research, and outreach. CGT students and faculty routinely make use of the Envision Center's resources. Additional electronic documentation can be seen at the following Web site: <https://www.itap.purdue.edu/envision/>.

6.4.3 Program Balance: *Appropriate laboratory activity shall be included in the program(s) and a reasonable balance must be maintained in course work between the practical application of how and the conceptual emphasis of why.*

Each CGT major course maintains a reasonable balance between theory and practice. Most CGT courses are scheduled with a lecture and a laboratory component. Typically, lecture sections of a course are scheduled 2 days a week for 50 minutes each day. Associated laboratory sections of the course are scheduled 1 day a week for 110 minutes. Additional open lab time is available, and many students have their own computers for additional work time. The CGT faculty firmly believes that education at the university level must emphasize the conceptual approach to applied computer graphics technology and strive to maintain the appropriate balance needed for the professional development of CGT students preparing for technical managerial careers in business and industry.

6.4.4 Problem-Solving Activities: *Emphasis in instruction shall be appropriately focused on problem-solving activities, which reflect contemporary industrial situations.*

Course instruction in the Computer Graphics Technology baccalaureate degree program at Purdue University is designed to focus on problem-solving activities reflecting contemporary industrial situations. The CGT faculty members are careful that courses go beyond the mere teaching of software tools. Service learning activities are built into several courses, giving CGT students the opportunity to apply problem solving related to applied computer graphics technology.

CGT 411 is especially noteworthy related to this standard. This capstone course uses industrial simulation, where project sponsors bring real work problems into the class. Students work in small groups, applying computer graphics technology to problems identified by sponsors in business, government, and education. Student and employer feedback has indicated that this course is extremely helpful to students because it showcases their problem-solving abilities. Additional documentation of student problem-solving activities will be displayed for the campus visit as part of the program's examples of student graded work. Student interviews will also substantiate this standard.

6.4.5 Motivation of Students: *Effective motivation of students shall be evident.*

The students enrolled in the Computer Graphics Technology baccalaureate degree program are highly motivated within the context of the academic program and extracurricular activities. Students participate in a number of organizations including the CGT Student Council, the Technology Student Council, ACM-SIGGRAPH (Purdue has the Alpha Chapter of this group, which is affiliated with Graphics Special Interest Group of the Association for Computing Machinery and was the first in the nation to affiliate with SIGGRAPH), Epsilon Pi Tau (the NAIT-recognized honor society for professions in technology), and other organizations on the Purdue University campus. Motivation of

CGT students is also evident by their participation in a broad array of supplemental experiences, including study abroad, cooperative education and internship, service learning, learning communities, and other activities related to their formal studies.

The Department of Computer Graphics Technology hosts the Purdue University Chapter of ACM SIGGRAPH. Chartered on April 29, 1998, this organization evolved from the former Purdue Graphics Society. The Chapter maintains a store on the third floor of Knoy Hall provided by the CGT department that offers technology students a place to buy supplies, food, and refreshments at a discounted rate. The store generates additional revenue for the club. Profits help the group to sponsor a speaker's program, hold a banquet and show each April, and conduct other business in support of the CGT degree program. ACM SIGGRAPH sponsors an outstanding student and an outstanding faculty award each year. The SIGGRAPH area of the department's Web site can be found at <http://siggraph.tech.purdue.edu/>.

The CGT student council has been very active in the last several years. The purposes of the Computer Graphics Student Council are to provide a means of communication on matters of common interest between faculty and students in Computer Graphics; to provide an official forum for students to voice their academic concerns and ideas; and to assess and give input to the department regarding facilities and equipment. Members of the Council routinely meet with the CGT department administration to discuss items of concern for current students, sponsor student and faculty mixers, help maintain display areas of the 3rd floor of Knoy Hall, and take on service projects. Starting in the fall of 2004, a CGT student council member sits on the CGT department's advisory board. The CGT student council area of the department's Web site can be found at <http://cgsc.tech.purdue.edu/>.

Students from Industrial Technology, Organizational Leadership and Supervision, and Computer Graphics Technology are routinely inducted into Epsilon Pi Tau. EPT recognizes students for their academic success and leadership potential. In the last several years, the majority of the officers in Gamma Rho Chapter of EPT at Purdue University have been CGT students.

Students avail themselves of the full range of activities found on the Purdue West Lafayette campus. Many serve as undergraduate assistants, participate in discover and engagement activities of the CGT faculty, and represent themselves and the department with professionalism and pride. In addition, CGT students participate in the Technology Student Council (seen at <http://www2.tech.purdue.edu/resources/tsc/index.html>) and Women in Technology (seen at <http://www2.tech.purdue.edu/orgs/wit/>).

Students from the organizations most closely related to the CGT degree program have been very helpful and supportive in this effort of the CGT department to secure NAIT accreditation. Students will be available for interviews during the campus visitation.

6.4.6 *Supervision of Instruction:* *Appropriate supervision of instruction shall be evident throughout the program.*

The Department of Computer Graphics Technology has a system of course supervisors responsible for planning, organizing, delivering, assessing, and overseeing the consistent delivery of courses in the major designated with the CGT prefix. All course supervisors are tenure-line faculty members with appropriate expertise related to the courses they supervise. The supervision is organized to include the CGT foundation courses, professional courses, and the courses associated with the signature areas of Computer Animation and Spatial Graphics, Architectural and Construction Graphics,

Virtual Product Design Graphics, and Interactive Multimedia Development. A list of course supervisors is presented in Appendix P.

CGT courses with multiple lab sections use graduate teaching assistants (GTAs) in the laboratory portion of the instruction. GTAs are closely supervised by the course professor and are reviewed for performance each semester. The CGT department has a senior faculty member assigned as Schedule Deputy and Undergraduate Coordinator, who builds the course schedule and assists the department head in making teaching assignments for the faculty and GTAs. An online instructor evaluation instrument is administered in all CGT courses at the end of each semester. The department head is ultimately responsible for the staffing of courses and the supervision of instruction.

6.4.7 *Scheduling of Instruction:* *The organization and scheduling of instruction shall allow adequate time for completion of appropriate homework assignments and laboratory problem-solving activities.*

Computer Graphics Technology courses in the College of Technology at Purdue University are organized and scheduled to allow students adequate time to complete homework assignments and problem-solving activities. A typical 3-credit CGT course has two 50-minute lectures and a 110-minute laboratory. Since each student cohort contains approximately 80 to 90 students, the CGT department schedules a single lecture division for each major course and multiple laboratory sections accompanying the lecture. Lab sections are limited to 20 students, each section based on the number of computers available for small-group instruction.

A senior department faculty member serves as the Undergraduate Program Coordinator and Schedule Deputy to help the department head plan the course offering schedule and to secure classroom and laboratory resources working closely with the Purdue Space Management and Academic Scheduling (SMAS) office. The course schedule is based on the course demand and enrollment management analysis conducted by the CGT Lead Academic Advisor prior to each enrollment period. Students are “futures” into a course pattern one semester in advance of scheduling. Faculty and facility resources are based each semester on this enrollment management plan. Ample open labs are available in Knoy Hall and other Purdue University computing facilities for students to supplement their assigned laboratory time. In addition, many students enrolled in the CGT program have their own computers that they can use to work on homework assignments. Course schedule documentation will be available for review during the on-campus visit.

6.5 Faculty

6.5.1 *Full-Time Faculty:* *Each major program and program option shall have an adequate number of appropriately qualified full-time faculty. Faculty qualifications shall include emphasis upon extent, recency, and pertinence of: (a) academic preparation, (b) industrial professional level experience (such as technical supervision or management), (c) applied industrial experience (such as technical applications), (d) membership and participation in appropriate Industrial Technology professional organizations, and (e) scholarly activities.*

The Computer Graphics Technology Department has an adequate number of qualified full-time faculty members to deliver the goals and objectives of the baccalaureate degree program. In the fall of 2005, the Department of Computer Graphics Technology has 21 tenure-line faculty members serving West Lafayette. One additional

position is currently under search for August 2006. Although this accreditation application does not include the Associate Degree program at the Statewide Technology (SWT) locations, the reader should understand that the CGT department has an additional six faculty members serving SWT, five of whom currently hold tenure-line positions in SWT.

All faculty members have appropriate expertise in the areas of their instructional responsibility and have a wide range of industrial experience in applied computer graphics technology. All faculty members also have appropriate participation in professional organizations and scholarly activities related to their areas of expertise. These qualities form the criteria for initial employment, yearly merit pay review, special merit review, and tenure and promotion review. Please see Appendix Q for faculty and professional staff curricula vitae.

6.5.2 *Minimum Faculty Qualifications:* *The minimum academic qualifications for a tenure-track faculty member (except in unusual circumstances which must be individually justified) shall be a bachelor's and master's degree in a discipline closely related to the faculty member's instructional assignments.*

As stated above, the Computer Graphics Department has 21 tenure-line faculty members (by head count) serving the baccalaureate degree program on the West Lafayette campus as of fall 2005. All faculty members are extremely qualified for their departmental assignments and hold Bachelor's and Master's degrees in disciplines closely related to their instructional assignments. As noted in the standard above, faculty résumés are presented in Appendix Q.

6.5.3 *Academic Preparation of Faculty:* *A minimum of fifty percent of the regular full-time faculty members assigned to teach in the major program(s) shall have an earned doctorate (exceptions to this standard will be granted only for unique programs such as Marine Transportation). If more than one major program exists at an institution, this standard will apply to all regular full-time faculty assigned to teach major programs in Industrial Technology at the institution. Exceptions may be granted to this standard if the institution has a program in place that will bring the institution into compliance within a reasonable time.*

The disciplines comprising Computer Graphics Technology present a challenge in providing a faculty with an earned doctorate. At Purdue University, the CGT baccalaureate degree program applying for NAIT accreditation emerged from the department's original associate degree program. Given the history of the development of the CGT baccalaureate degree program on the West Lafayette Campus out of the original associate degree program, several of the current CGT faculty members were hired and tenured under a paradigm more appropriate for NAIT accreditation at the associate degree level.

At the time of the writing of this self-study, 6 of 21 regular full-time, West Lafayette, CGT faculty members have an earned doctorate. A seventh PhD faculty member has a courtesy appointment from the Envision Center. Therefore, the program's self-analysis of compliance with this standard identifies 32 percent of the faculty having the earned doctorate as of spring 2006. Three CGT West Lafayette faculty members are currently doctoral candidates. Another four faculty members are starting advanced graduate programs.

The reader should note that two CGT West Lafayette faculty members with Master's Degrees are on phased retirement (one will be fully retired after May 2007 and

the other after December 2007). The phase retirement faculty members are scheduled for replacement. Two additional West Lafayette CGT faculty members with Master's Degrees teach lower division or service courses for non-majors only.

When removing the lower division and phased retirement faculty members from the analysis and adding the courtesy faculty member, the program currently has 42 percent of the faculty members with doctorate degrees at the time of the writing of this report. Considering new hires and the degree progress of the current faculty members, the 50 percent doctoral faculty of this standard will be achieved within a reasonable time period. The self-analysis of the current CGT faculty degree status related to this standard is presented in the following table.

<i>Faculty Member</i>	<i>Rank</i>	<i>Instructional Area</i>	<i>Degree</i>	<i>Comments</i>
Nicoletta Adamo-Villani	Assistant Prof	Animation	MS	
Raj Arangarasan	Researcher	Scientific Visualization	ABD	Courtesy Appointment
Laura Arns	Researcher	Scientific Visualization	PhD	Courtesy Appointment
Carley Augustine*	Assistant Prof	SWT at South Bend	MS	Lower Division Instruction only
Frank Brattain	Assistant Prof	SWT at Richmond	MS	Lower Division Instruction only
Bedrich Benes*	Assistant Prof	Scientific Visualization	PhD	
Gary Bertoline	Professor	Scientific Visualization	PhD	
Judith Birchman	Associate Prof	Multimedia	MS	
Mark Curtis**	Professor	Computer Aided Design	EdD	South Bend Director
Patrick Connolly	Associate Prof	Product Design Graphics	MS	PhD Candidate after 5/06
Clark Cory	Associate Prof	Construction Graphics	MS	Intended PhD student
John Finnegan	Associate Prof	SWT at New Albany	MFA	Lower Division Instruction only
Mike Gabel	Associate Prof	Computer Aided Design	MS	Lower Division Instruction only
Ronald Glotzbach	Assistant Prof	Multimedia	MS	Intended PhD student
Nathan Hartman	Assistant Prof	Product Design Graphics	EdD	
Richard Kopp	Associate Prof	SWT at New Albany	MFA	New Albany Director
Lisa Kilmer	Visiting Ass'nt Prof	SWT at Kokomo	MS	Lower Division Instruction only
Kellen Maicher*	Assistant Prof	Multimedia	MS	Intended PhD student
Craig Miller	Professor	Product Design Graphics	PhD	
Susan Miller	Associate Prof	Multimedia	MS	Lower Division Instruction only
James Mohler	Associate Prof	Multimedia	ABD	PhD (anticipated 8/06)
Carlos Morales	Associate Prof	Animation & Multimedia	MS	Intended JD student
James O'Neal	Associate Prof	Animation & Multimedia	MS	On phased retirement (5/07)
William Ross	Professor	Animation & CAD	MS	On phased retirement (12/07)
Mary Sadowski	Professor	Multimedia	PhD	Associate Dean
Marvin Sarapin**	Professor	Product Design Graphics	PhD	Department Head
Dennis Short	Professor	Animation & Multimedia	MS	PhD candidate
Wayne White	Assistant Prof	Computer Aided Design	MS	Lower Division Instruction only
Open Position	Ass'nt/Asso Prof	Animation/Construction		PhD preferred
*(new hire fall 2005)		***(new hire fall 2004)		

This standard was discussed with the NAIT Executive Director and the assigned NAIT Accreditation Consultant as the Department of Computer Graphics Technology made the preliminary decision to pursue NAIT accreditation for the West Lafayette baccalaureate degree program in CGT. The College of Technology at Purdue University has a plan for bringing the Computer Graphics Technology baccalaureate degree program into compliance with this standard within a reasonable time through the hiring process, resulting in replacement of faculty scheduled for retirement and the degree progress of the current faculty. Therefore, exception to this standard, as provided in the statement of the standard above, is requested from the NAIT Board of Accreditation.

6.5.4 *Selection and Appointment Policies: Policies and procedures utilized in the selection and appointment of regular faculty shall be clearly specified and shall be conducive to the maintenance of high-quality instruction.*

The College of Technology has an adequate procedure in place to assure recruitment and selection of highly qualified faculty for the maintenance of quality instruction. Identification of potential new faculty members in Computer Graphics Technology is based on a search-and-screen process conducted by the faculty. The department head is responsible for the hiring process with the approval of the Dean of the College of Technology, University Provost, President, and Board of Trustees.

Generally, a position search announcement is developed by the department search- and-screen committee and approved by the Affirmative Action Office prior to national advertisement. The CGT department faculty committee conducts an initial screening of applicants to determine the pool of qualified candidates for each position until an adequate and appropriate candidate pool is secured. A short list of candidates for campus interviews is determined on the basis of telephone interviews.

The CGT search and screen committee then conducts on-campus interviews to explore the candidates' expertise related to the specifications of the advertised position including the presentation of a model lesson or presentation. The search-and-screen committee recommends priority candidates for faculty positions to the head of the department, who makes the offer to hire, with approval of the Dean of the College. The selection and appointment policies are documents in the College of Technology Handbook that will be on display in the on-campus documentation room during the site visit.

6.5.5 *Tenure and Reappointment Policies:* *Faculty tenure and reappointment policies and procedures shall be comparable to other professional program areas in the institution. Requirements in the areas of teaching, service, and scholarly activity shall be clearly specified for faculty in Industrial Technology.*

The College of Technology at Purdue University provides each faculty member with a copy of the Faculty Handbook for Academic Promotion and Tenure for rewarding achievement in Learning, Discovery, and Engagement (a copy of which will be included in the New Faculty Orientation folder in the department documentation room). This document prepared by the Area Committee of the College of Technology for its West Lafayette Campus and Statewide Technology Locations was in its fourth edition at the time of the writing of this self-study. The handbook is specific to the College of Technology and is based on the Purdue University Academic Procedures Manual N-65.

In general, a tenure-line appointment is made for an initial two-year term and is reviewed for renewal semi-annually or annually based on the decision of the department head. The department reviews each non-tenured faculty member 12 months prior to the expiration of the current contract based on the performance of the candidate. In addition, the department head conducts an annual review of each faculty member to determine the yearly salary increase based on job performance or merit.

All faculty members at Purdue University are provided with a copy of the President's Form 36 which standardizes the review process for tenure and promotion across the university. The initial review of a candidate's application for tenure or promotion occurs at the Primary Committee (department), made up of all tenured Associate Professors and Professors in the department. Successful department candidates are then reviewed at the Area Committee (College) which is made up of the head and an additional elected full professor from each department in the College of Technology plus an Association Dean, forming a 17 member committee. A two-thirds positive vote in the College of Technology Area Committee is required for a candidate to advance to the University Promotion Committee. The University Promotion Committee, made up of the

Dean of each College and elected Full Professors representing each College or School, reviews successful College promotion candidates.

Assuming a faculty member is hired as an Assistant Professor, the maximum probationary period is 7 years. At Purdue University, tenure is normally accompanied by promotion to the rank of Associate Professor. Faculty members hired at the untenured rank of Associate Professor have a three-year probationary period and must be tenured at the end of their third year of service. According to the College Faculty Handbook, a candidate for promotion is expected, first and foremost, to have demonstrated and documented excellence and continuous improvement in teaching, as evidenced by student learning. In addition, consistent with the university's promotion criteria, candidates are expected to have demonstrated accomplishments in the areas of discovery and engagement.

According to university and college criteria, a candidate for promotion to Associate Professor should have a significant record of accomplishment as a faculty member and show promise of continued professional growth and recognition. Likewise, successful candidates for promotion to Professor should be recognized as authorities in their fields of specialization by external colleagues, national and/or international as may be appropriate to their academic disciplines and be valued for their intramural contributions as faculty members. Additional documentation needed to rate the CGT program's compliance with this standard will be available during the campus visitation.

6.5.6 *Faculty Loads:* *Faculty teaching, advising, and service loads shall be comparable to the faculty in other professional program areas at the institution. Consideration shall be given in faculty teaching load assignments to high contact hours resulting from laboratory teaching assignments.*

Faculty teaching, advising, and service loads in the Computer Graphics Technology department are comparable to seven other departments within the College of Technology. At Purdue University, a faculty member's workload is made up of learning, discovery, and engagement expectations. The Department of Computer Graphics Technology at West Lafayette strives to maintain a nine-contact hour average teaching load. Faculty teaching loads are adjusted each semester from the average, depending on the individual faculty member's involvement in discovery and engagement for the semester.

Each College of Technology department employs academic counselors to do undergraduate advising (CGT has 1.5 FTE undergraduate counselors). Faculty members do not participate in formal undergraduate academic advising. Faculty with Purdue University graduate school certification advise graduate students, as part of their expected work load.

Faculty members are expected to have individual agendas in learning, discovery, and engagement and have loads comparable to other units in the College of Technology and on campus with similar missions to accomplish their agendas. In 2005-2006, the Department of Computer Graphics Technology was budgeted for 20 FTE in faculty and 10 FTE in graduate teaching assistants. (Teaching assistants help the faculty cover laboratory instruction.) Teaching, advising and service loads are adequate and appropriate for the CGT faculty to accomplish the mission of the department. Data showing the relative teaching loads across departments in the College of Technology can be found in Appendix T.

6.6 Students

6.6.1 ***Admission and Retention Standards:*** *Admission and retention standards shall be used to ensure that students enrolled are of high quality. These standards shall compare favorably with the institutional standards. Sources of information may include admissions test scores, secondary school rankings, grade point averages, course syllabi, course examinations, written assignments, and oral presentations.*

Admission and retention standards are in place for Computer Graphics Technology at Purdue University to ensure high-quality students in the baccalaureate degree program. Students can be admitted into Computer Graphics Technology in following four ways:

- First-time freshmen
- Transfers from Statewide Technology (SWT) locations after the associate degree
- Transfers from other institutions
- Change of Degree Objective (CODO) on campus

All applicants for baccalaureate degree program admissions at Purdue University must either have graduated from high school or have a GED. Purdue has established subject-matter expectations in English, math, laboratory science, and foreign language. These requirements vary among the schools and programs, so the minimum standard that a prospective student must meet depends on the program to which they apply. The College of Technology subject-matter expectations include 6 semesters in academic math, 4 semesters lab science, 8 semesters in English, and no language requirement.

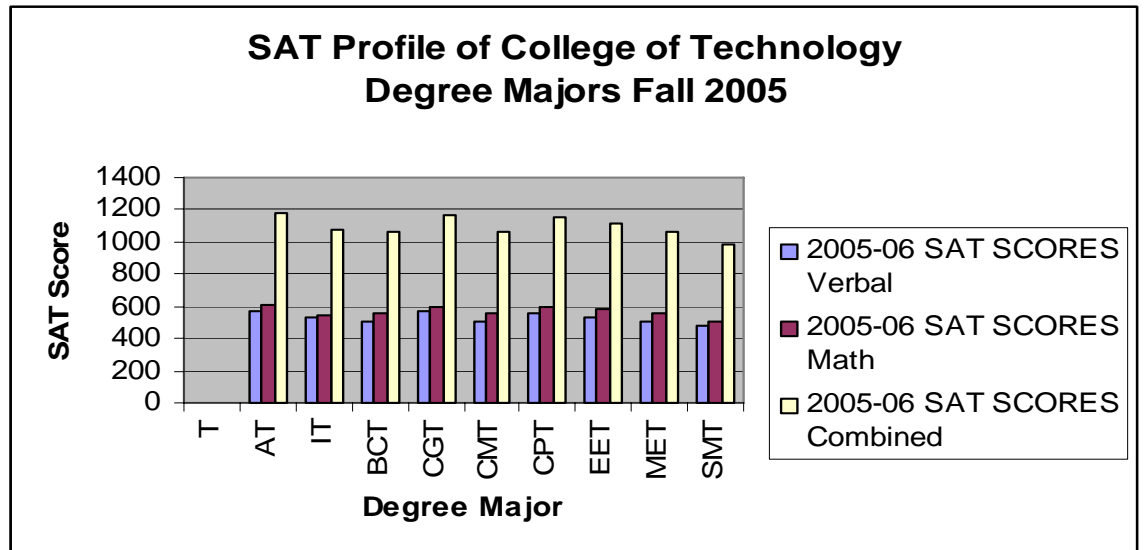
Applicants who meet the minimum subject-matter requirements are evaluated on the basis of quality. Quality includes much more than just high school class rank; it also encompasses a student's probability of success, overall grade average, grade average in degree-related subjects, trends in achievement, SAT and/or ACT scores, and the strength of the student's college prep program. Purdue gives preference to Indiana residents.

Purdue University applauds the state's efforts to strengthen Indiana's high school students' academic preparation and expects all Indiana residents graduating from high school to complete the Core 40 requirements. In addition to considering high school courses, Purdue will continue to use other factors such as grade point average, class rank, trends in achievement, honors courses, and test scores when reviewing applications for admission. Purdue University evaluates applicants on an individual basis and in relation to their requested majors.

In the preparation of this self-study, the Purdue University Office of Enrollment Management provided detailed information concerning the Verbal, Math, and Combined SAT scores of students admitted into the degree programs in the College of Technology between fall 2002 and fall 2005. The data representing this time period are presented in the following table. The graph of the data for fall 2005 reveals that CGT first-time freshman had the highest SAT profile for the College of Technology majors along with those majoring in Aviation Technology and Computer Technology.

2002-03			
SAT SCORES			
	Verbal	Math	Combined
T	490.77	546.92	1037.69
AT	568.69	616.43	1185.12
IT	498.24	535.88	1034.12
BCT	503.89	560.00	1063.89
CGT	563.68	598.82	1162.50
CMT	517.27	561.82	1079.09
CPT	555.00	609.46	1164.46
EET	512.71	561.88	1074.59
MET	515.88	583.14	1099.02
SMT	523.33	556.67	1080.00
2004-05			
SAT SCORES			
	Verbal	Math	Combined
AT	572.93	607.50	1180.43
IT	560.00	585.00	1145.00
BCT	481.43	532.24	1013.67
CGT	581.62	605.00	1186.62
CMT	513.75	576.25	1090.00
CPT	568.19	593.89	1162.08
EET	508.55	553.19	1061.74
MET	521.00	561.67	1082.67
SMT	510.27	545.41	1055.68

2003-04			
SAT SCORES			
	Verbal	Math	Combined
T	524.29	541.43	1065.72
AT	596.51	616.14	1212.65
IT	516.15	519.23	1035.38
BCT	513.24	550.74	1063.98
CGT	581.72	612.07	1193.79
CMT	537.69	563.85	1101.54
CPT	585.08	609.67	1194.75
EET	516.30	557.81	1074.11
MET	515.83	554.31	1070.14
SMT	515.38	543.85	1059.23
2005-06			
SAT SCORES			
	Verbal	Math	Combined
AT	574.07	609.07	1183.14
IT	528.33	550.00	1078.33
BCT	506.04	553.40	1059.44
CGT	569.13	598.26	1167.39
CMT	508.89	560.00	1068.89
CPT	558.23	593.04	1151.27
EET	531.11	579.38	1110.49
MET	502.28	559.11	1061.39
SMT	481.28	507.44	988.72



Students who start college at another institution may transfer to Purdue to complete their degree. Transfer students must meet high school subject-matter expectations and achieve the appropriate college grade point average (GPA) and course and grade requirements, where necessary. Admissions expectations depend on the Purdue college/school. For most programs, the expected college GPA ranges from 2.5 to 3.0 on a 4.0 scale. The GPA requirement for transferring into the Computer Graphics Technology

BS degree program is currently 3.3 (if the program has available capacity). Students completing the Associate of Science degree with a 2.5 GPA in a CGT SWT location may transfer to West Lafayette to continue their studies in Computer Graphics Technology.

On the West Lafayette campus, all Computer Graphics Technology first-year students begin their study in the Freshman CGT sequence which serves as a foundation for the Computer Graphics Technology baccalaureate program. Before applying for admission into the professional program, a student must successfully complete all the courses in the freshman CGT sequence with a minimum Graphics Admission Index (GAI) of 2.5. All students in the CGT major must earn a grade of C or higher to count a course in the degree program. In addition, a student may not repeat a CGT course more than twice.

6.6.2 *Scholastic Success of Students:* *Students in Industrial Technology shall have scholastic success comparable to those in other curricula in the institution. Grading practices in Industrial Technology courses shall be comparable to other departments and/or programs in the institution. Evidence shall be presented to indicate the scholastic achievement level of Industrial Technology students in both basic studies and major course work.*

Purdue University uses a 4.0 grading scale with letter grades. A plus and minus letter grading system has been approved by the Faculty Senate but has not been implemented at the time of the writing of this self-study report. The scholastic achievement of students pursuing the baccalaureate degree program in Computer Graphics Technology is comparable to the other programs in the College of Technology on the basis of student GPA, graduation rates, initial job placement, and student graduate school aspirations.

The program assures students will have high scholastic success in the standards for admission into the professional program based on departmental policies. Students must earn a GPA of 2.5 in the CGT freshman sequence to be admitted to the BS degree program in CGT. Students may not use a CGT course to count toward graduation unless they earn a grade of C or better. Students may not repeat a course twice without special permission to do so.

In preparation for analysis of this standard, students enrolled in the CGT capstone courses in spring 2005 were surveyed concerning their overall GPA and their GPA in the major. Sixty-four percent of the students had an overall GPA of 3.0. Seventy-two percent had a CGT GPA over 3.0. The following table summarizes the GPA data collected.

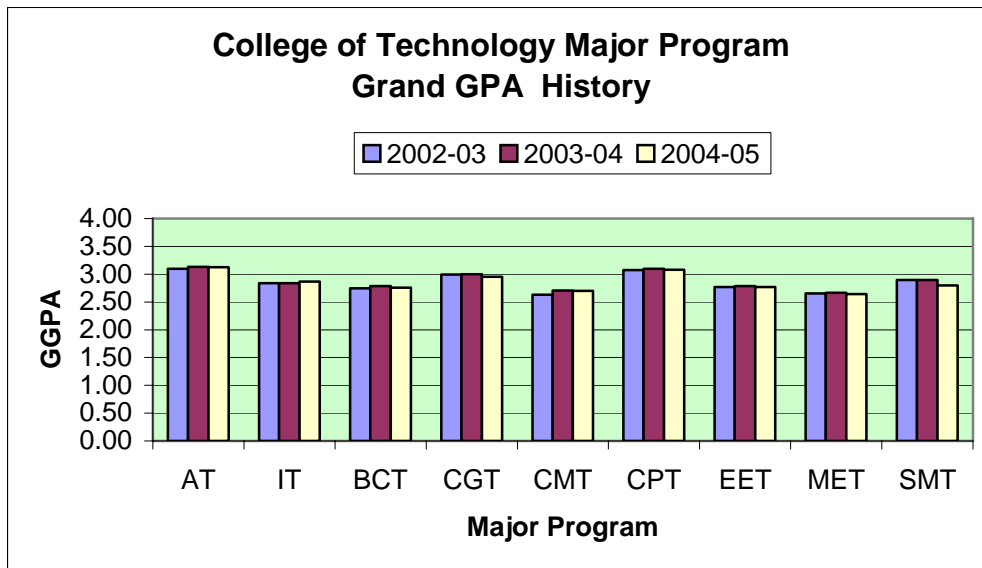
<i>Spring 2005 GPA Survey</i>	<i>Overall GPA #</i>	<i>Overall GPA %</i>	<i>CGT GPA #</i>	<i>CGT GPA %</i>
Above 3.5	7	14	10	20
Between 3.5 and 3.0	25	50	26	52
Between 3.0 and 2.5	18	36	13	26
Between 2.5 and 2.0	0	0	1	2
Below 2.0	0	0	0	0
Total	50	100	50	100

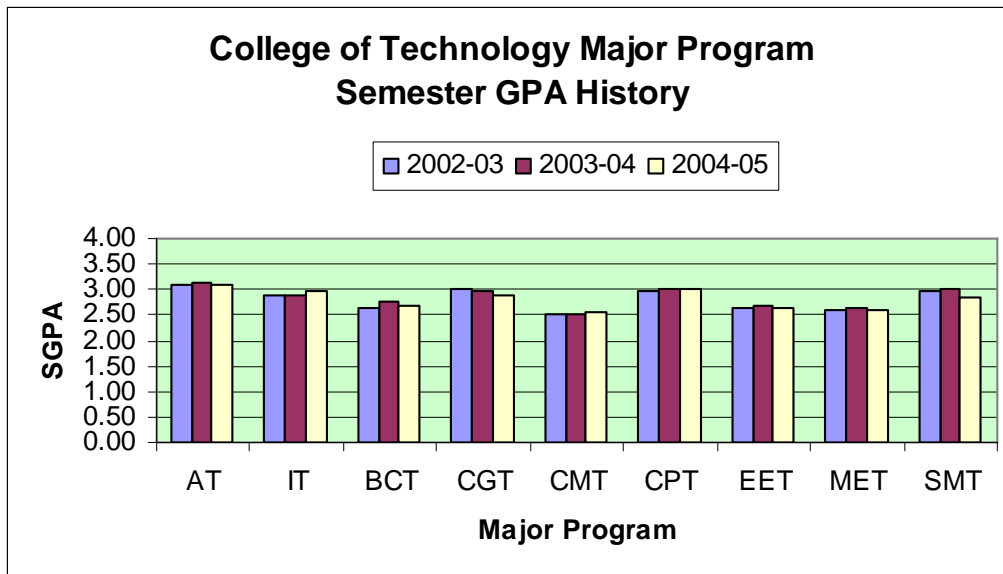
The best benchmark for scholastic success of the CGT major is the comparison to other majors in the Purdue University College of Technology on the West Lafayette campus. The following table presents scholastic success data for the nine degree titles offered by College of Technology. In preparation for this self-study, the Office of

Enrollment Management prepared the following table showing the Semester Grade Point Average (SGPA) and Grand Grade Point Average (GGPA) in undergraduate programs in the College of Technology for the previous three years. The reader should note the Bar-Chart of the Grand Grade Point Average data and the Bar-Chart of the Semester Grade Point Average data reveal that Computer Graphics Technology (CGT) students' performance is no different from that of Aviation Technology (AT), Computer Technology (CPT), or Organizational Leadership and Supervision students (SMT).

Purdue University - Office of Enrollment Management
 College of Technology
 Semester GPA and Grad GPA

	2002-03		2003-04		2004-05	
	SGPA	GGPA	SGPA	GGPA	SGPA	GGPA
T	2.58	2.56	2.60	2.74		
AT	3.11	3.10	3.11	3.13	3.11	3.13
IT	2.89	2.84	2.91	2.84	2.98	2.87
BCT	2.64	2.74	2.76	2.78	2.68	2.76
CGT	3.03	3.00	2.96	3.00	2.89	2.95
CMT	2.51	2.63	2.54	2.71	2.57	2.70
CPT	2.97	3.07	2.99	3.09	3.01	3.08
EET	2.63	2.77	2.70	2.79	2.63	2.77
MET	2.59	2.65	2.62	2.67	2.59	2.64
SMT	2.96	2.90	3.03	2.89	2.85	2.80





6.6.3 **Placement of Graduates:** *The initial placement, job titles, job descriptions, and salaries of graduates shall be consistent with the program(s) goals and objectives. The advancement of graduates within organizations shall be tracked to ensure advancement to positions of increasing responsibility. Industry's reaction to graduates as employees must be favorable. Follow-up studies of graduates shall be conducted every two to five years. Summary statistics relating to follow-up studies of graduates shall be made available to prospective students. These statistics shall include placement rates as well as salary levels of program graduates.*

The Computer Graphics Technology baccalaureate degree program in the College of Technology at Purdue University tracks the initial placement, including the job title, job description, and salaries of CGT graduates. The department conducts senior exit interviews and follow-up studies to collect placement data. The department's administrative assistant and individual faculty members provide much of the exit and initial employment contact for recently graduated students. The department Web site includes yearly initial placement data which has been collected since 1999-2000. This information is available to future students on the program's Web page which can be found at the following location (<http://www.tech.purdue.edu/Cgt/Placement/index.html>). The employers and job titles data from the department's Web site is also presented in Appendix G.

A three-year-out follow-up study was conducted in the fall of 2005 of CGT baccalaureate degree graduates from 2002 in preparation for this initial accreditation application. The survey collected a range of information related to this and other NAIT standards. Summary data are published on the department's Web page. The instrument and data are documented in Appendix H.

An employer follow-up study of alumni giving permission to contact their employer was conducted in the fall 2005 in preparation for this self-study. The instrument is presented in Appendix H. Since this report is produced in preparation for the initial accreditation of the baccalaureate degree program in Computer Graphics Technology, the CGT department has a plan to conduct follow-up studies every two to five years in preparation for subsequent re-accreditation self-studies.

6.6.4 ***Graduate Studies:*** *If an objective of the program(s) is to prepare students for graduate studies, then the success of Industrial Technology graduates in graduate programs shall be tracked and confirmed.*

The objective of the BS in Computer Graphics Technology in the College of Technology at Purdue University, West Lafayette campus, is to prepare visually oriented students for careers in creating and managing the production of computer graphics within a wide range of industries. At the time of the writing of this report, the department enrolled approximately 440 undergraduate students. The CGT Department graduates approximately 110 undergraduate students each year.

There is no direct objective of the CGT baccalaureate degree program to prepare students for graduate education. However, the Department of Computer Graphics Technology has a Computer Graphics Technology Area of Specialization (AOS) in the MS degree in Technology offered by the College of Technology that enrolls approximately 40 MS degree students. An additional 11 students enrolled in the College of Technology PhD degree program have special interest in Computer Graphics. Approximately 20 MS degree students with an AOS in Computer Graphics Technology graduate yearly. The College of Technology admitted its first PhD degree-seeking students in the fall of 2004.

Progress of both BS and MS degree students are tracked and confirmed as part of the CGT department's strategic planning yearly activities. Based on a survey of senior CGT students conducted in spring 2005 (n=50), 56 percent of the students indicated that they had no plans to attend graduate school upon completion of the baccalaureate degree program. Another 32 percent indicated they might be interested in attending graduate school some time in the future. Only 12 percent indicated they planned to apply for graduate school upon graduation.

Until the fall 2005, the office of the Assistant Dean for Graduate Education in the College of Technology maintained an extensive database, tracking all the graduate students of the College of Technology. Starting in the fall of 2005, the CGT Graduate Education Coordinator has been charged with tracking and confirming the success of CGT graduate students from admissions to program of study approval to degree completion. A follow-up study of all College of Technology MS degree students was planned for the summer of 2005 but will now be conducted at the department level in the spring 2006. In addition, the success of CGT graduate students are tracked and confirmed by the graduate student's committee. There is a close working relationship between each student and the major advisor or committee chair. Approximately 40 percent of the students enrolled in the MS degree program with the Computer Graphics Technology AOS were Purdue University undergraduates. Please see additional information in Appendix G.

6.6.5 ***Student Evaluation of Program(s):*** *Evaluations of the Industrial Technology program(s) shall be made by its graduates on a regular basis (two to five years). Their reactions and recommendations shall be considered in program revisions.*

The Computer Graphics Technology baccalaureate degree program which has been housed in the College of Technology at Purdue University, has used student feedback of its graduates in a number of ways and on a regular basis. This has been evident in the evolution of the degree program from its former emphasis on industrial illustration, using hand-skill techniques, into the present, highly computerized and comprehensive program in applied computer graphics technology.

The department head meets with members of the Technology Student Council, the CGT Student Council, ACM SIGGRAPH, and Epsilon Pi Tau on a regular basis to collect informal student evaluation information related to the CGT baccalaureate degree program. The CGT department collects feedback from currently enrolled students as part of the senior professional experience. The most recent senior survey at the writing of this report was conducted at the end of the spring 2005 and fall 2005 semesters and documented in Appendix L.

The CGT department conducts exit interviews as each cohort graduates. Student job placement data is collected at the time of program exit if the student has been placed and 6 months after graduation. Follow-up studies of program graduates are conducted 2 years after graduation. The most recent follow-up study was conducted in the fall of 2005. Alumni were also asked to give permission for the department to contact their employer to collect additional assessment data.

Many alumni maintain a close relationship with the program faculty and offer program improvement recommendations both formally and informally. Several members of the CGT Industrial Advisory Board are former students. Several current CGT faculty members are former BS or MS degree students.

The Computer Graphics Technology Industrial Advisor Board, which includes several CGT alumni, provides evaluation input. These data sources are carefully considered by the CGT Curriculum Committee in making program revisions. Additional follow-up data being collected at the time of writing this report will be on display in the documentation room during the on campus visit of the accreditation team.

6.6.6 *Student Enrollment:* *Enrollment shall be adequate in each program area to operate the program(s) efficiently and effectively. The level of available resources shall be considered as a constraint on the maximum number of qualified students to be admitted to the program(s). Enrollment shall be tracked, and factors affecting enrollment patterns shall be identified and analyzed. Enrollment projections shall be made which relate closely to short and long-range goals and resource needs.*

The student enrollment and the level of available resources in the Computer Graphics Technology baccalaureate degree program in the College of Technology at Purdue University are adequate to operate the program efficiently and effectively. The CGT department has a comprehensive enrollment management plan and a strategic plan addressing the enrollment history and target for the BS and MS degree programs in Computer Graphics Technology.

The current (2005-2007) enrollment target for the CGT department is to maintain 450 undergraduate students. That is a planned decrease of 50 students over 2001-02. The CGT department plans to maintain a graduate student enrollment of approximately 50 students. Factors affecting undergraduate enrollment patterns are reviewed routinely. For example, the department and college have noted increased graduation rates and decreased summer school enrollments in the last 2 years. Economic conditions affecting the students' ability to finance their education has been identified as the most likely reason for the observed trend. As a result, the CGT department will offer fewer summer school course sections in 2006 and will admit 10 additional first year students for fall of 2007.

College of Technology Fall 2005 Enrollment of New Students							
	Beginners	Transfer	Reentry	Regional Transfers	TOT	Men	Women
AT	117	33	12	3	165	147	18
IT	15	13	15	1	44	42	2
BCM	68	21	14	4	107	104	3
CGT	91	2	3	5	101	76	25
CMT	9	1	1	0	11	11	0
CPT	94	10	6	7	117	110	7
EET	99	8	11	11	129	126	3
MET	96	8	21	12	137	135	2
SMT	40	20	24	9	93	62	31
CoT TOT	629	116	107	52	904	813	91

As explained earlier in this report, the CGT undergraduate degree program has four sources of students (first-time freshmen, transfers who complete the CGT associate degree in one of the statewide technology locations, transfers from other institutions and students who do a Change of Degree Objective [CODO] from other WL degree programs). The department head works closely with the CGT undergraduate coordinator/schedule deputy and head advisory/degree auditor in setting the number of new freshman, transfer, and CODO students the department admits each semester to maintain its enrollment management plan. The department head also works closely with the CGT graduate coordinator in tracking the progress of graduate students to determine their enrollment management. The following table presents CGT undergraduate enrollment management data since 2001.

Base/Target	Average SAT Score	Number of new freshman	Fall CODO	Fall enrollment	Spring CODO	Spring enrollment
2002-03	1162	96	19	521	22	480
2003-04	1193	82	35	467	33	451
2004-05	1186	88	25	476	26	425
2005-06	1167	90	25	449	25	435

6.6.7 Advisory and Counseling Services: *Adequate and timely advising and counseling services shall be available for students.*

The CGT department employs 1.5 full-time equivalent academic advisors for approximately 440 undergraduate students. The advisors are on 12-month appointments. Students have access to their advisors through appointments or during regularly scheduled “walk-in” times. Advisors are available to discuss academic issues and to guide students to the appropriate resources for tutoring assistance, career guidance, and other university concerns (financial aid, encumbrances, etc.).

Prior to the 2003 school year, the College of Technology maintained a center for academic advising in a common area on the ground floor of Knoy Hall of Technology. In the fall of 2003, the academic advisors were moved to the location of the departments

thus giving students closer counseling availability to the locus of major course activity in the program.

To provide evidence for this standard, the survey of seniors at the end of the fall 2005 semester (n = 50) contained a specific question concerning student satisfaction with the department's advisory and counseling services. Sixty-two percent of the students rated the CGT advising and counseling service above average or excellent. Only 8 percent rated advising and counseling services below average. No students rated the services poor. The CGT academic advisor resumes are included in Appendix Q.

In addition, Purdue University maintains a Career for Career Opportunities located in Stewart Center (<https://www.cco.purdue.edu/>) open to all majors. The center offers a full range of resources for students, alumni, employers, and faculty including career counseling, resume writing, career fairs, employer presentations, placement, and advisory services. The center has a liaison to the College of Technology.

6.6.8 ***Ethical Practices:*** *Ethical practices shall be fostered, including equitable student tuition refunds and nondiscriminatory practices in admissions and employment.*

Purdue University employs ethical practices, including equitable student tuition refunds and nondiscriminatory practices in admissions and employment. Students desiring to withdraw from classes are directed to contact the Office of the Dean of Students in Schleman Hall and complete a withdrawal form to begin the official withdrawal process. This procedure enables Purdue University to refund the maximum possible institutional charges. Refund policies of the university are published and available to the public at <http://www.purdue.edu/Bursar/TitleIV.htm>. Students who drop hours or withdraw from the university will receive a prorated refund of tuition and fees according to the following schedule:

- Prior to the first day of classes 100%
- During the first two weeks of classes 80%
- During the third and fourth weeks of classes 60%
- During the fifth and sixth weeks of classes 40%

At Purdue, integrity is indispensable to our mission. We act with honesty and adhere to the highest standards of moral and ethical values and principles through our personal and professional behavior. We demonstrate our understanding of these values and principles and uphold them in every action and decision. Trust and trustworthiness go hand-in-hand with how we conduct ourselves, as we sustain a culture that is based upon ethical conduct. We expect our actions to be consistent with our words, and our words to be consistent with our intentions. We accept our responsibilities, share leadership in a democratic spirit, and subject ourselves to the highest standards of public trust. We hold ourselves accountable for our words and our actions. For details, please see <http://www.purdue.edu/Purdue/integrity/index.htm>.

Purdue University prohibits discrimination against any member of the university community on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, disability, or status as a disabled or Vietnam-era veteran. The university will conduct its programs, services, and activities consistent with applicable federal, state, and local laws, regulations, and orders and in conformance with the procedures and limitations as set forth in Executive Memorandum No. D-1 which provides specific contractual rights and remedies. Additionally, the university promotes the full realization of equal employment opportunity for women,

minorities, persons with disabilities, and Vietnam-era veterans through its affirmative action program. Please see <http://www.purdue.edu/Purdue/nondiscrimination/> for details.

6.7 Administration

6.7.1 Program Administration: *Programs in Industrial Technology are expected to have an identifiable, qualified individual with direct responsibility for program coordination and curriculum development. This individual should be a full-time employee of the institution.*

The Department of Computer Graphics Technology is one of eight academic units in the College of Technology, each having a 12-month, full-time department head. The CGT Department Head sits on the College of Technology Dean's Administrative Council; Chairs the Departmental Promotion and Tenure (Primary) Committee; serves on the College of Technology (Area) Promotion Committee; has the direct responsibility for program coordination and curriculum development in undergraduate and graduate education in Computer Graphics Technology; has signature authority for all departmental business and academic matters; and delegates responsibilities to faculty and staff members, as deemed appropriate. In addition, the department head conducts yearly department strategic planning progress reviews and yearly faculty and staff performance reviews and makes recommendations to the Dean for the faculty and staff merit compensation.

6.7.2 Administrative Leadership: *Individuals assigned to administer Industrial Technology programs must demonstrate effective leadership and satisfactory support for Industrial Technology.*

The Computer Graphics Technology Department in the College of Technology at Purdue University has a full-time administrative leader. Dr. Marvin I. Sarapin was appointed the CGT Department Head on July 1, 2004, bringing over 30 years of experience in similar leadership positions. Dr. Sarapin, who serves as CGT Department Head at the pleasure of the Dean, has proven effective in his administrative leadership during his tenure in the position. He is responsible for the CGT bachelor's degree program under review at the West Lafayette Campus and the CGT associate degree programs at the Statewide Technology locations. Under Dr. Sarapin's leadership, the Computer Graphics Technology Department has made the commitment to pursue NAIT accreditation of the baccalaureate degree program in Computer Graphics Technology for the West Lafayette campus.

6.7.3 Administrative Support: *There must be appropriate support for Industrial Technology from the personnel holding leadership positions in the departments and colleges where Industrial Technology is administratively located.*

Extensive administrative support exists in the College of Technology at Purdue University to support the baccalaureate degree program in Computer Graphics Technology which is under review for NAIT accreditation. A list of administrators and titles supporting the program is documented below.

<i>Support Personnel</i>	<i>Administrative Title</i>
Dr. Dennis Depew	Dean of the College of Technology
Dr. Mary Sadowski	Associate Dean for Undergraduate Programs & Instruction
Dr. Michael O’Hair	Associate Dean for Statewide Technology
Dr. Melissa Dark	Assistant Dean for Research and Graduate Education
Dr. Melita Tomovic	Special Assistant to the Dean for Advanced Manufacturing
Dr. Nathan Hartman	CGT Graduate Program Coordinator
Prof. Judith Birchman	CGT Undergraduate Coordinator and Schedule Deputy
Mr. Abraham Cross	Director of Development
Mr. Jerry Alberts	Director of Corporate Relations
Ms. Shelly Opperman	Director of Alumni Relations
Ms. Antonia Munguia	Director of Diversity
Mr. Lary Troutner	Director of Financial Affairs
Ms. Rhonda Jones	Business Manager for CGT
Mr. Kerry Arnold	Director of Information Technology (TCN)
Mr. Lloyd Ewing	Knoy Hall of Technology Building Administrator
Dr. Mark Curtis	South Bend Location Director
Prof. Richard Kopp	New Albany Location Director
Prof. Thomas Capozzoli	Kokomo Location Director
Prof. Brian Alenskis	Richmond Location Director

6.8 Facilities and Equipment

6.8.1 *Adequacy of Facilities and Equipment: Physical facilities and equipment, which are suitable to serve the goals and objectives of the program(s), shall be available for each program option. Where facilities and equipment appear to be minimal to support a quality program(s), comparisons with support levels for other relevant programs at the institution will be made by the visiting team.*

The Department of Computer Graphics Technology, offering the baccalaureate degree program in Computer Graphics Technology, is housed on the 3rd floor in Knoy Hall of Technology on the West Lafayette campus of Purdue University. Since the department joined the College of Technology in 1984, it has evolved into a program with facilities and equipment heavily involved in teaching the hand skills associated with the former program in Technical Graphics. Today, the program is computer intensive and has extensive computer facilities supported by TCN (Technology Computer Network) and ITAP (Information Technology at Purdue). The laboratory (computer) facilities are comprehensive and are more than adequate for the CGT baccalaureate degree program to meet its goals and objectives and compare favorably to other programs on the Purdue campus and nationwide for similar instruction.

The Department of Computer Graphics Technology office suite and individual faculty offices are comparable to the other departments in the College of Technology and are adequate to meet the goals and objectives of the CGT degree program. Readers with Internet access can find CGT facilities documentation at the following URL: <http://www.tech.purdue.edu/cgt/aboutus/facilities/knoy310.cfm>. Additional information concerning the facilities and equipment to support the CGT program are presented in Appendix I.

6.8.2 Support for Facilities and Equipment: *Facility and equipment needs shall be reflected in the long-range goals and objectives for the program(s), and sources of potential funding shall be identified.*

There is adequate support for facilities and equipment for the BS degree in Computer Graphics Technology at Purdue University, West Lafayette campus, to meet its goals and objectives. Purdue University, the College of Technology, and the Department of Computer Graphics Technology have an extensive strategic planning process. Support for the program to reach a level of preeminence in learning, discovery, and engagement is integral to the department and College of Technology strategic planning process. The computing infrastructure is addressed by the strategic plan of the Technology Computing Network (TCN), which is responsible for supplying and maintaining the computing facilities used by the College of Technology in general. TCN updates the computer facilities and equipment used by the CGT major program on a regular basis. The computer equipment used in the major rooms where CGT courses hold lab sessions have been updated since the summer of 2004.

The CGT department has an adequate Supply and Expense (S&E) budget (documented by using another section of this report) that is justified to the Dean of the College of Technology based on the department's strategic plan. The department funds the hardware needs and software licenses for CGT specific applications in the facilities assigned exclusively to the department.

The College of Technology has an annual Capital Equipment allocation that is justified to the Dean of the College based on strategic planning justification. The CGT department maintains a capital equipment committee responsible for the long-range facilities and equipment planning and short-range equipment implementation. The committee routinely reports its long- and short-range plans at CGT faculty meetings. The department's ability to leverage funding is a goal of the Dean in awarding Capital Equipment funding. The visualization laboratory dedicated to the CGT department was fitted with replacement computers thanks to Capital Equipment funding in fall 2004.

Securing outside funding and gifts-in-kind are measurable metrics in the CGT strategic plan. Purdue University, the College of Technology, and the Department of Computer Graphics Technology have secured significant gifts of computer software that has enhanced the program's ability to meet its goals and objectives in learning, discovery, and engagement. In addition, many of the department's Primary Investigators (PI) write equipment funding into their outside project proposals.

At the writing of this report, the College of Technology is in the early stage of planning for Phase II of Knoy Hall, the home of the college since 1984. We anticipate a major Capital Campaign to commence in the near future since outside funding of new construction is an expectation at Purdue University.

6.8.3 Appropriateness of Equipment: *Equipment shall be appropriate to reflect contemporary industry.*

The equipment used by the Computer Graphics Technology baccalaureate degree program is adequate to achieve the program's goals and objectives to reflect contemporary industry. As stated in other sections of this report, the CGT degree program is computer intensive. Extensive computers are available through the CGT department, the College of Technology, and Purdue University. Adequate, legally licensed software exists to support CGT instruction. The available hardware and software is updated, as needed, to meet the programs goals and objectives. The assigned

accreditation team will clearly see appropriate equipment to reflect contemporary industry during the campus visit.

6.9 Computer Systems

6.9.1 *Availability of Computer Systems:* *Appropriate computer systems shall be available to students and faculty to cover appropriate functions and applications in each program area. These systems may be on or off site and centralized or decentralized, as long as the systems are accessible to students and faculty by means of remote terminals and/or input-output devices.*

Appropriate and extensive computer systems are available to students and faculty in Computer Graphics Technology. Every Purdue University student and faculty member is given a career account facilitating access to an extensive computing infrastructure maintained by Information Technology at Purdue (ITAP). ITAP computing facilities are omnipresent on campus.

All students and faculty members in the College of Technology are given a TCN account to support their work and study. Application software and drive space available is extensive, allowing students and faculty to meet the goals and objectives of the Computer Graphics Technology baccalaureate degree program. CGT faculty members make extensive use of the computer systems available to support instruction, collect student-submitted work, and provide student feedback and other essential activities.

A Product Lifecycle Management (PLM) Center is located on the 3rd floor of Knoy Hall, adjacent to the location of the CGT department office location. The PLM Center is a learning, discovery, and engagement resource to the CGT degree program. In addition, the Envision Center for Data Perceptualization is a resource available to CGT students and faculty. Administered by a CGT senior faculty member, the Envision Center has a vast array of high-end computing, including grid computing capability available to CGT students and faculty.

6.9.2 *Utilization of Computer Systems:* *Evidence shall be available which indicates students and faculty are making adequate and appropriate use of computer systems.*

The baccalaureate degree program under review for accreditation by the National Association of Industrial Technology is named Computer Graphics Technology and is housed in the Computer Graphics Technology Department that emerged from the former Department of Technical Graphics. Today, virtually every course in the CGT baccalaureate major makes extensive and appropriate use of computer systems. All faculty members are extremely computer literate. Computing competency development of CGT students is essential in virtually all Computer Graphics Technology courses.

6.10 Financial Resources

6.10.1 *Financial Support:* *The budget for the Industrial Technology program(s) shall be adequate to support program objectives. When judging sufficiency, the visiting team may wish to make comparisons with the support levels given to other professional programs at the institution.*

Financial support for the Computer Graphics Technology baccalaureate degree program in the College of Technology at Purdue University is adequate to support the program's goals and objectives. An adequate Salary and Supply and Expense (S&E)

budget is allocated to the department on a recurring basis. An adequate Capital Equipment allocation is made yearly and is based on proposals from the department's capital equipment committee, which is related to the College of Technology Strategic Goals and Directions.

Department heads in the College of Technology at Purdue University have great fiduciary autonomy and are assigned a business manager who is housed in the college. Funds can be transferred between accounts and can be carried forward to the next year, since the money given to the departments is fungible. Prior to 2005, TA support for each department was allocated on a yearly basis. Starting in the 2005-2006 school year, the TA support is budgeted on a recurring basis.

The financial support for the Computer Graphics Technology Department is appropriate, considering the number of students served and the nature of its laboratories compared to what is available to the other departments in the College of Technology (Aviation Technology and Mechanical Engineering Technology are more equipment and supply intensive whereas Organizational Leadership and Supervision and Industrial Technology are less equipment and supply intensive). The financial support for the Computer Graphics Technology Department is most like that of the Computer and Information Technology Department (CIT), since its size and missions are the most comparable. A 5-year financial support history of the CGT program is given in the following table. Additional information is presented in Appendix J.

Year	Faculty Salaries	Professional Staff Salaries	Support Personnel Salaries	TA Salaries	Supplies & Expenses	Capital Equipment
2005-06	1,203,219	82,671	70,586	248,272	74,639	40,000
2004-05	947,845	81,050	69,184	245,173	74,639	30,000
2003-04	664,934	79,465	66,605	262,592	74,296	51,000
2002-03	1,038,220	151,516	66,704	282,918	74,297	50,400
2001-02	1,064,544	88,436	63,676	270,567	74,297	38,000

6.10.2 External Financial Support: *There shall be evidence of external support for the program(s) in Industrial Technology. However, this external support shall be treated as supplementary support and be used to achieve and maintain a high level of excellence. This external support shall not be used to displace funding support normally provided by the institution.*

Substantial external financial support exists to supplement the Computer Graphics Technology baccalaureate degree program in the College of Technology at Purdue University in addition to its recurring budget. Sources include internal College of Technology grants; Purdue University grants; external grants; gifts-in-kind from business and industry, and cash donations administered through the Purdue University Research Foundation (PRF).

CGT faculty members have been successful in securing Faculty Scholars' Funding, internal seed grants, international travel grants, recruitment grants, and other funding to support their learning, discovery, and engagement agendas. Faculty members have also been successful in securing external grants. Gifts-in-kind, such as a recent software gift valued in excess of \$16 million made by General Motors has helped the department provide state-of-the-art software applications for CGT students. Especially noteworthy is the recent alumni gift in excess of \$325,000 that was essential in funding endowments for student scholarships, department research, a department fund, and a development fund, including a matching-fund program for additional donors. The

readers of this report are directed to the Department of Technology Strategic Plan located in Appendix B which outlines external financial support metrics for the CGT department.

The College of Technology leadership team, in support of this accreditation standard, includes a full-time director of development, a full-time corporate development officer, and a full-time alumni relations director to assist the CGT and other departments. An Assistant Dean helps faculty articulate and pursue their research funding agendas. An Associate Dean has similar responsibilities for championing faculty engagement agendas. The business manager housed in the College of Technology assigned to the Department of Computer Graphics Technology provides budget and financial support. The following table presents a four-year history of the CGT program's external financial support. Additional information is presented in Appendix K.

Year	Internal Grants	Travel Grants	External Grants	Cash Gifts	Gifts-in-kind
2005-2006	TBD	TBD	151,100 YTD	10,845 YTD	TBD
2004-2005	121,307	None	231,392	328,912	None
2003-2004	72,892	3,314	122,021	10,572	16,047,250
2002-2003	195,023	1,858	92,416	8,878	1,048,500
2001-2002	87,576	Not avail	56,686	37,725	3,746,250

6.11 Library Services

6.11.1 *Library Resources:* *The administrative unit containing the Industrial Technology program(s) and/or the institutional library shall maintain a collection of Industrial Technology literature and reference materials adequate to meet the curriculum and research needs of students and faculty.*

Library resources were initially discussed in section 6.4.2. This section gives additional details specifically related to the extensive library resources available to students on the West Lafayette campus.

The Siegesmund Engineering Library is one of 14 school and departmental libraries in the Purdue University Library System under the direction of the Dean of Libraries housed in Potter Hall, which is adjacent to Knoy Hall of Technology. Each library in the system, with the exception of the Hicks Undergraduate Library, supports the educational and research needs of specific department(s) and/or school(s).

Purdue University Libraries is a member of the Association of Research Libraries (ARL) [<http://www.arl.org>], whose mission is to shape and influence forces affecting the future of research libraries in the process of scholarly communication. Membership in the association is by invitation to major university libraries whose collections and services are broadly based. Annual statistics publications describe the collections, expenditures, staffing, and service activities for the member libraries. These are published in the *Chronicle of Higher Education* and are also available on the association Web site [<http://fisher.lib.virginia.edu/arl/index.html>]. Based on the 2003 statistics, Purdue Libraries' collection of 2.43 million volumes, its total current serials of 13,639, and its total library expenditures of \$17.74 million along with other standard criteria, give an index score rank of 76th of 113 member libraries.

In addition to the monographs and periodicals, the libraries also have more than 2.5 million microfilm/microfiche as well as hundreds of thousands of scientific and technical reports from many of the U.S. government's agencies. As a member of the government depository program, the libraries receive specific government publications and provide Internet access to the agencies' Web sites. The Engineering library is also a member of the U.S. Patent and Trademark depository program, where the library receives

DVD copies of all patents and trademarks issued. The DVDs are for use with a dedicated patent-searching computer.

The Engineering Library provides the main collections and services to support the curriculum and research for the College of Technology. Students and faculty of the college are also likely to find useful information in the Management & Economics, Mathematics (which also supports computer science) and Undergraduate libraries.

As of June 30, 2005, the Engineering Library had about 400,000 volumes and 1,558 current serial subscriptions. Many older, under utilized volumes from the Engineering Library are in the Libraries' storage facility located in the Hicks Undergraduate Library and readily accessible to all users.

As a Level 1 research institution, Purdue University must provide its faculty and students with access to the resources needed to locate information to support both the discovery and learning components of its mission. The libraries license over 340 databases, including the primary databases students in engineering technology should utilize (e.g., Applied Science and Technology Abstracts, Compendex, INSPEC, ACM Digital Library), as well as access to the appropriate government agencies' websites and databases (e.g., NTIS).

The Engineering Library seats about 340 on 3 floors. There is a mix of tables and rooms for group study, in support of the prevalent teamwork in the engineering and technology programs at Purdue, and individual study carrels. During the Fall and Spring Semesters, the library is open a total of 97 hours per week, and the reference staff is available to help with reference queries and to assist students and faculty using databases and other reference tools 57 hours per week. During the summer sessions, break, and intercessions, the Library is open fewer hours but all library services are provided. When a reference staff member is unavailable, or the student is working from home, the libraries provide a "chat" reference service, which allows the students to ask their questions without coming into the Library. All year round the libraries offer an email reference service to handle additional requests from users who cannot make it into the Library.

The expanding collection of electronic resources, which includes full-text reference materials and journals, combined with the digital reference assistance, provide 24/7 access to many of the Library's primary resources and services. Additional information related to the Purdue Library System is presented in Appendix U.

6.11.2 *Utilization of Library Resources:* *Evidence shall be available which indicates that students and faculty are making adequate and appropriate use of library resources.*

Faculty members and students in the Computer Graphics Technology baccalaureate degree program at Purdue University make adequate and appropriate use of library resources. Although Internet resources to support the CGT degree program are extensive, the program professors make sure students also use the extensive Purdue University library resources. For example, many students might attempt to develop class papers entirely from Internet resources. However, CGT professors insist that student work must include traditional journal and textbook references. An example course objective related to this standard is documented from CGT 226. Students in this course are expected to demonstrate professional writing skills through relevant literature searches and reports. This objective can be accomplished only through using available resources including library resources.

6.12 Support Personnel

6.12.1 Support Personnel: *Personnel such as teaching assistants, student work-study assistants, secretaries, and service technicians shall be adequate to support program objectives.*

Adequate support personnel exist to meet the mission, goals and objectives of the Computer Graphics Technology baccalaureate degree program. This support includes graduate teaching assistants, student work-study assistants, secretaries, academic advisors, computer technician, and other support personnel.

Currently, the CGT department is budgeted 10 FTE in graduate teaching assistant per semester. A ½ FTE graduate assistant works 20 hours per week. Graduate teaching assistants help course professors cover multiple laboratory sections, grade student work, and provide other needed faculty support.

The Department of Computer Graphics Technology employs one full time 12-month secretary assigned to the department head and the Graduate Program Coordinator. A second full-time, 10-month secretary is employed to assist the department faculty.

The Technology Computer Network (TCN) staff supports the computer facilities of the College of Technology located in Knoy Hall. Instructional Technology at Purdue (ITaP) staff support the university computing resources used by the department.

The Department of Computer Graphics Technology employs 1.5 FTE academic advisors, one of whom is also a .5 FTE assistant to the department head. In addition, a business manager and clerks support the business activities of the department faculty. The College of Technology employs a Building Deputy who supports all departments in the college. In addition, the College of Technology has numerous other support personnel available to support the degree program under review, including alumni relations, development, marketing and communications, and other specialists. Please see the response to standard 6.7.3.

6.13 Placement Services

6.13.1 Placement Services: *Appropriate services shall be available to assist with the placement of program graduates. Placement of graduates shall be tracked, and the effectiveness of the services shall be evaluated by the administrative unit containing the Industrial Technology program(s).*

The Computer Graphics Technology baccalaureate degree program provides adequate placement services for CGT students. The department employs a .5 FTE administrative assistant whose responsibilities include assisting students with placement services. As part of these duties, the administrative assistant serves as the CGT Department's main contact person for student and alumni placement and job information from potential employers.

A traditional job bulletin board is maintained near the CGT department office. A digital listserv is maintained for CGT current students and alumni that is documented at http://www.tech.purdue.edu/cgt/student_life/listserv.cfm. The assistant to the department head uses this forum to inform students and alumni of known job openings. The department also maintains other placement information at the following location http://www.tech.purdue.edu/cgt/career/placement_procedures.cfm.

In addition, the Purdue University Center of Career Opportunities (CCO) provides an array of services to students that are documented at <https://www.cco.purdue.edu/>. The CGT department also participates at the Career Round Table and Job Fair sponsored by

the College of Technology. Employers routinely travel to campus to meet with CGT faculty and students. Alumni make contact with CGT faculty and professional and the University and College alumni offices keeping the department informed of their career and professional development.

The placement of graduates is tracked upon graduation if a student is employed at that time. The department reports 6 initial placement data to the Dean of Technology 6 months after graduation. The CGT department also conducts follow-up studies 2 to 3 years after graduation, as explained in another section of this report. Additional information concerning placement services is presented in Appendix G.

6.13.2 Cooperative Education: *If cooperative education is either a required or an elective part of the program, then appropriate services shall be provided to assist with the placement and supervision of cooperative education students.*

Both Cooperative Education and Internship experiences are available to students on an elective basis in the baccalaureate Computer Graphics Technology degree program at Purdue University. Internships are single experiences designed to provide students with work experience related to their studies that can be awarded credit. The faculty approves internship locations. The employer evaluates student work, and the students must present a seminar on campus prior to receiving credit. More than one cooperative education experience can be taken for credit.

Cooperative Education is a more formal experience, whereby a student must work for the same company through a sequence of 4 experiences over the student's college career to graduate as an official Cooperative Education student. The majority of students under this accreditation standard opt for the internship experience, finding it more flexible.

Two specific questions related to this accreditation standard were included in the spring 2005 senior survey; of the 50 students who completed the instrument, 19 (38 %) responded that they had completed at least one cooperative education or internship experience as part of their CGT studies. Eight students (16 %) indicated having taken 2 experiences. Only 1 student (2 %) had more than 3 experiences. Again, this indicates that students opt for the Internship rather than the formal Cooperative Educating program, since multiple experiences are not required.

A CGT faculty member assists students planning on enrolling in the Internship experience, reviews employer evaluations, and evaluates every student's required on-campus seminar presentation related to the student's experience. In the recent survey cited above, of the 19 students indicating having completed an internship or cooperative education experience, 72 percent rated their experience Above Average or Excellent. Additional information related to this standard is presented in Appendix S.

6.14 Industrial Advisory Committee(s)

6.14.1 Program Advisory Committee(s): *An industrial advisory committee shall assist in the validation of program content. If more than one major program or program option is available, then appropriately qualified industrial representatives shall be added to the committee, or more than one committee shall be maintained. Evidence shall be presented to indicate the (a) procedures used in selecting members, (b) length of appointment, (c) organization of the committee, (d) committee responsibilities, (e) frequency of meetings, and (f) methods of conducting business.*

Every department in the College of Technology maintains an active Industrial Advisory Board (IAB). The Dean of the College of Technology maintains a Dean's Industrial Council in addition to the IAB in each department. The CGT IAB consists of program alumni, industrial employers, other industrial partners related to the signature areas of the department-including computer animation, multimedia development, construction graphics, product design graphics, and two current student representatives.

The goal of the CGT IAB is to include 3-4 industrial advisors with expertise in each of the department's signature areas. IAB members are nominated by CGT faculty, COT administrators, alumni, or students and are appointed by the CGT department head for 3-year terms. With the April 2005 revision to the CGT IAB by-laws, two students were appointed to the IAB for the fall 2005 meeting. The board meets every spring and optionally in the fall of each academic year. CGT IAB by-laws specify the procedures used in selecting members, the length of member appointments, member responsibilities, frequency of meetings and governance, method of conducting business, and procedures for amending the process. The by-laws are provided in Appendix M. The members of the IAB, as of spring 2005, are as follows:

The Computer Graphics Technology Industrial Advisory Board <u>Members- 2005-2006</u>	
Matthew Boothby Telematrix Digital Media	Dale Jackson Electronic Arts-Tiburon
Dave Bozell CG Visions	Kurt Luther Undergraduate Student
Thomas Crume The Boeing Company	Chuck McKenna MACMEDIA
William Dillon Robert Bosch Corporation	Martin Murphy Midway Amusement Games
Susan Ferringer Purdue University	Ken Spear, MD St. Mary's Health System
Dan Fishtorn Wausau Homes, Incorporated	Joseph Toschlog Undergraduate Student
Tim Glaue KBE Technologies, GM Powertrain	Mark Vernacchia GM Powertrain, General Motors Corp.
Rebecca Gray Robert Bosch Corporation	Eric Zurschmiede IBM Engineering Solutions
Liz Howard John Wieland Homes and Neighborhoods	

6.14.2 Advisory Committee Meetings: *The industrial advisory committee(s) shall meet at least once each year, and appropriate minutes shall be kept of these meetings showing agenda items, actions taken, and recommendations made.*

The CGT Industrial Advisory Board meets every spring and optionally in the fall of each academic year. A record of IAB agendas and minutes are maintained and will be available in the on-campus-visit documentation room. The department Web page includes a tab for our Industry Partners that includes the Industrial Advisory Board and can be viewed at <http://www.tech.purdue.edu/cgt/corporatepartners/iab/index.cfm>. Additional documentation of advisory committee meetings will be provided for the campus visit.

6.15 Educational Innovation

6.15.1 *Educational Innovation:* *There shall be evidence that innovation furthering program objectives is being carried out in the administrative unit housing the Industrial Technology program. This includes developing and testing new learning approaches and technologies and disseminating the results.*

The Computer Graphics baccalaureate degree program in the College of Technology at Purdue University has a rich history of educational innovation. Faculty members have extensive learning, discovery, and engagement agendas bringing a vast array of experiences into the classroom. Many faculty members make computer-managed learning available through Web-CT Vista. Others employ distributed distance education, learning communities, service learning, and other innovative teaching approaches. Industrial partners routinely donate state-of-the art software for CGT curriculum implementation.

Faculty members routinely secure projects and include students in applying computer graphics technology to real problems from business, government, and education. Faculty members partner with their counterparts in other departments and disciplines for collaboration in learning, discovery, and engagement activities where their expertise in applied computer graphics technology adds significantly to the outcomes of projects.

Every course in the CGT major makes extensive use of the department and individual course Web sites to present digital information to students. Many faculty members develop and publish local textbooks to teach the objectives of their courses on state-of-the art software applications. Several faculty members have published national textbooks based on instruction delivered in the program. Dissemination of faculty learning, discovery, and engagement activities are criteria for promotion and tenure as well as merit-pay salary increases. Faculty scholarly productivity is tracked annually, as input into the Purdue University merit review procedure. Additional documentation related to this standard is presented in Appendix N.

6.16 Assessment

6.16.1 *Assessment Plan and Integration:* *An assessment plan shall be comprised of, but not limited to, the following for each program:(1) program mission statement, (2) the desired program outcomes/student competencies,(3)evidence that the program incorporates these outcomes/student competencies, (4) the assessment measures used to evaluate student mastery of the student competencies stated, (5) compilation of the results of the assessment measures, and (6) evidence that these results are used to improve the program.*

The Computer Graphics Technology baccalaureate degree program at Purdue University employs a systematic assessment plan to ensure the continuous improvement of the instructional program. The following section of this report presents the Computer Graphics Technology five-phase assessment model. Throughout the assessment process, department faculty, students, alumni, employers, Purdue University administrators, and members of the CGT Industrial Advisory Committee Board provide input. A discussion of the Assessment Model follows.

Assessment Model Phase I

The **first phase** of the CGT self-assessment process was accomplished as part of the College of Technology and Department of Computer Graphics Technology Strategic Planning process. The CGT faculty and staff worked during the 2003-2004 school year in developing the department's strategic plan, which included a review of the department's strategic vision and mission statement. Following the strategic planning model of the university, the CGT department identified five strategic priorities that included baseline and target metrics. This plan went through a series of reviews, including review by the department faculty, the CGT Industrial Advisory Board, and College of Technology administrators.

The CGT department mission statement is presented in the strategic plan and the department's Web documentation. The mission of the Department of Computer Graphics Technology at Purdue University is to prepare practitioners, managers, and leaders in the field of applied computer graphics through learning, discovery, and engagement. (Please see Appendix B.)

Assessment Model Phase II

The **second phase** of the CGT assessment process entailed the identification of student outcomes for the Computer Graphics Technology degree program. In the CGT Assessment Model, student outcomes are identified for every individual course with a CGT prefix and offered by the Department of Computer Graphics Technology. Each course in the CGT degree program lists course objectives stated in *behavioral terms* using the statement: "*As a result of this course, the student should be able to. . .*" forming the student outcomes at the course level. Therefore, in this Model, student outcomes are identified and first made accountable in the individual courses of instruction using a course-embedded assessment strategy. A comprehensive list of student outcomes is presented in Appendix D.

Assessment Model Phase III

The **third phase** of the CGT assessment model included validation studies of the identified student outcomes. In the most recent assessment activities, modified Likert-type instruments were administered to members of the Industrial Advisory Board and faculty to rate all identified student outcomes in every CGT prefix course in the Computer Graphics Technology baccalaureate degree program. (Please see Appendix D). These data were used to help the advisory committee recommend adoption, modification, or deletion of individual student outcome statements causing revision in the instructional program resulting in a validated set of learning outcomes for the Computer Graphics Technology baccalaureate degree program.

Assessment Model Phase IV

The **fourth phase** of the CGT assessment model, which is ongoing, includes the use of a number of outcome assessment measures to provide evaluation feedback concerning the Computer Graphics Technology major program. The CGT department surveyed semester 7 and 8 seniors in the spring of 2005 to provide a variety of information to help the department assess the major program (Please see Appendix R). The CGT Department collects information from alumni and their employers concerning student attainment of our identified student outcomes on a regular basis. Most recently, a

3-year-after-graduation survey instrument was administered to 2002 graduates during the summer of 2005, providing the CGT department with further information regarding the effectiveness of the program relative to student performance on the job, and the effectiveness of the Major Program in preparing students for working in business and industry (Please see Appendix H). A Likert-type instrument organized by CGT required course and selective/electives is in the process of being developed and administered to program graduates. Alumni from the last several years will be asked to rate their attainment of the identified outcome statements in the next step in the assessment process.

Assessment measures currently used by the Computer Graphics Technology baccalaureate degree program include the following:

- Capstone course assignments and performance
- Portfolio review
- Demo real review
- Cover letter and résumé review
- Exit interview

In addition, the faculty is considering the possibility of having students sit for appropriate certification examinations in the future.

Assessment Model Phase V

The **fifth phase** of the Assessment Model is also ongoing and includes examination of data provided in the first four phases of the process. This phase is intended to result in curriculum and instructional changes, thus closing the assessment loop. This process tends to validate the CGT Department's mission, goals, objective, instruction, assessment plan, and results, using a wide range of data collected from a variety of sources, as explained above.

When problems are identified throughout the assessment process, a number of possible remedies can be followed. Identified student outcomes can be improved, expanded, deleted or changed. In the recent CGT assessment activities in Phase III, several student outcome statements (behaviorally stated objectives) were combined or deleted, after the rating process undertaken by the Industrial Advisor Board and program faculty.

When problems arise with the assessment measures, the action of improvement, expansion, deletion, or change is also available after careful consideration of the effect of the action on the CGT program and the students. Such changes recently took place in Phase IV activities when the CGT faculty decided to require a student portfolio review embedded within a CGT capstone course.

The purpose of employing an assessment model is to ensure continuous program improvement facilitating attainment of the CGT Department's vision of being the preeminent program in applied computer graphics technology. The program has gone through constant development, assessment, and revision since it emerged from its early history of Technical Graphics, using traditional hand-tool techniques of the past into the present dynamic program of Computer Graphics Technology. The use of such an assessment model, as explained here, has helped to facilitate this process of continuous program improvement. Additional information concerning this standard is presented in Appendix O.