



**Dr. Eduardo J. Martí**  
President

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## **Introduction**

The 2005-2009 Technology Plan was developed to frame the College vision of technology and its relationship to our mission and Strategic Plan. Developed in this context, the Plan reflects on technology advances since the 2001 Plan, and includes the results of a Spring 2005 Technology Survey of our full time and adjunct faculty, including College Laboratory Technicians (CLTs), as well as Higher Education Officers (HEOs). The Plan also offers a future view of the applications and challenges of technology, and the issues we face to sustain and grow its use and effectiveness in and out of the classroom.

Appointed by President Eduardo Marti, The Technology Plan Committee members, representing a variety of campus constituencies, included:

- Dr. Diane Call, Vice President for Finance and Administration
- Dr. Mark McColloch, Vice President for Academic Affairs
- Dr. Philip Pecorino, Chair, Academic Senate Steering Committee
- Professor Anthony Kolios, Faculty Executive Committee
- Dr. Patrick Wallach, Academic Senate Committee on Computer Resources
- Mr. George Sherman, Executive Director of Information Technology
- Mr. Bruce Naples, Director of the Academic Computing Center

This document was crafted and refined over ten months through a consultative process that involved faculty, staff, students, and representatives from our campus governance bodies. The committee membership was drawn to be inclusive and reflective of those involved with both infrastructure and applications of technology. The survey of faculty and staff was formulated from our strategic and on going planning process, as well as a collectively refined mission statement. Through broadcast emails to the campus community and to students, the draft Technology Plan document was available for review through a link on the College web site. The site also offered an on line feedback opportunity. Finally, an open forum publicized through email to the College community was held to review the plan, discuss its themes, and incorporate on-line comments received as well as those raised by faculty and staff in attendance. This Fall, several committees of the Academic Senate engaged in discussions of issues in the draft Technology Plan.. Where those comments were expressed to the Technology Plan Committee, they were considered in the last edit of the Technology Plan. The final document was received by the Academic Senate of Queensborough Community College in December 2005.

## **I. Background—History and Recent Technological Advances**

### **▽ 2001-2005 Technology Plan**

The 2001 Technology Plan has been a valuable tool for guiding technology's growth at Queensborough. The Plan called for a network infrastructure capable of delivering Multi-Media applications. The College network was upgraded with newer network equipment to accommodate this technology. The Plan anticipated the need for network connections in every lab and every classroom and those connections have been installed. The need for a "Ubiquitous Computing" environment was cited and a 95 node wireless network now blankets the Queensborough Campus. Faculty development for the creation of online courses was another priority. This was met with the training of instructional staff (over 500 attendees) in the use of Blackboard software. The Plan pointed out the necessity of email accounts for faculty/staff and students. These accounts have all been created. Students now have grades and other Queensborough communications directly emailed to them. A roster of student email addresses is supplied to every instructor. The need for a new Financial Aid Online Application Lab was cited and the lab was built. The Plan anticipated the need for a Storage Area Network (SAN) and it has been put in place. Low-end servers mentioned in the Plan have been replaced by 45 new high-end servers.

The survey that gave direction to the Plan indicated strong support for the creation of Smart Classrooms. To date, 11 general-purpose and 35 departmental Smart Classrooms have been built with varying degrees of instructional technology. Twelve portable Smart Podiums have been assembled and are in daily use across the campus. The College's responsibility to supply current software licensing was also strongly supported by the survey. By the end of the Spring 2006 semester all campus computer facilities will have had hardware and software replaced, bringing them up to current standards. A desire to make Portable computing devices available to students was also noted in the survey. In response, more than 125 laptops have been purchased for use by students in the Library, Instructional Support Services Center, Academic Computing Center, and Academic Departments.

Many of the goals established in the Plan were supported by matching New York State and New York City funds and City Council funds. Accomplishments of the last three years were made possible by the new Student Tech Fee, the Community College Investment Plan (CCIP), and various grants.

**All goals in the 2001 Technology Plan have been met or exceeded.**

## **II. Vision of the College as it Relates to Technology—what is and what will be**

### **∇ The Mission Statement and Technology**

The College's Mission Statement offers a commitment to both academic excellence and rigor and to providing great opportunity for student success in an open admissions environment. The Mission statement recognizes that the College must provide bridges across this potential gap. The two main attempts to do this are through a close linking of academic and student support services and through a strong focus on community college pedagogy.

Technology comes into play in both areas. Student support services need to be tied closely to academic work, and technology can facilitate this. Primary examples would include developmental labs and e-tutoring, and new initiatives, such as the My Academic Plan and the e-Portfolios.

To support our best practices-based application of pedagogy, as well as to facilitate our research efforts in this area, wise use of technology is also required. Examples would include Blackboard, hybrid instruction and asynchronous work, as well as the equipment contained in teaching/learning locales such as the smart classrooms.

### **∇ Strategic Plan**

The Strategic Plan for 2005-2006 speaks to technology in several ways. It states that "Center for Excellence in Teaching and Learning (CETL) and the Academic Computing Center (ACC), under the direction of the Vice President for Academic Affairs, will support faculty and instructional staff development in pedagogy, using educational technology, and continuing to study its effectiveness". The need to continue and deepen that process will require certain types of technological and training decisions.

The 2005-2006 Strategic Plan also states that the College will implement the Technology Plan we develop this year. Included in the 2004-2005 Strategic Plan were goals of increasing the frequency of student use of computer technology and student satisfaction with their access to computer technology, in both cases indicated by their responses to the City University of New York (CUNY) Student Experience Survey. These goals continue to hold true.

### **∇ Survey Results**

In March, 2005 the Technology Committee sent a survey to all Instructional Staff and HEOs at Queensborough. About 100 replies were received, heavily skewed towards those already using technology. For example, 81% of respondents said that they used Blackboard in at least one class currently. If we recognize that this is, for the most part, a technology-adept group we can make some inferences from the survey.

Faculty members are, generally, very happy with the adaptive technology provided, although 18% said that all their ADA needs had not been met. About 73% said that they were currently utilizing the fixed smart podia, but over one-third said that they desired more training in their use. Only about 47% said that they currently used the smart cart podia, with 21% desiring more training in their use. This would point towards both a steady transition towards fixed podia and continued user-friendly training.

Almost everybody reported using Word Processing at least once a week, (96% did so daily), while 81% used a spread sheet program like Excel at least once a week. Nearly half the technology friendly reporting group had built a Web site on campus. At home, 91% used a Windows system, with only 9% on Apple Mac. The overwhelming majority had an Internet connection at home, and most used or wanted to use, a Personal Digital Assistant (PDA). Ninety-seven percent said that they checked their e-mail just about daily, and three-quarters used e-mail with students. While the percentage may not be representative of the faculty as a whole, it is important to note that one-third of all respondents felt that a computer upgrade would enhance instruction.

Most of the respondents had interest in participation in Distance Education, with nearly half conditioning their participation on each of support, training and incentives. There was more interest in synchronous or hybrid courses than in asynchronous, even among this technophile group. Two-thirds of these respondents felt that the College should offer more Distance Education courses, but most opposed the offering of entire degree programs. Interestingly, 68% wanted to be able to turn wireless Internet access off within their classrooms. Only 26% of these respondents made use of wireless technology.

One of the strongest responses came on the issue of faculty development in the new educational technologies. Fully 97% of respondents called for it to be the highest or a mid-level priority. Most said they would participate in summer or year long faculty development institutes. It is, however, important to note that even most of this group made their participation contingent on released time or a stipend.

Most of the survey respondents wanted the College to be responsible for establishing and maintaining computer labs, but felt that the Department should control scheduling of the facilities.

On the open-ended questions, the most frequent responses were criticism of the servicing of Blackboard by the Central Office. Next most frequent was a call for more fixed smart podia. The third most common request was for more laptops to be available for student use, on mobile carts.

While it is important to address the concerns of the tech savvy respondents to this survey, the committee acknowledges the need to make educational technology more freely available to all.

#### ▼ Technology – A Definition

Technology means different things to different departments and curriculums. For example, nursing, chemistry, physics, electrical tech, mechanical tech, and biology might envision technology differently from the general population of the college. Technology can be defined as the tools and machines that help to solve problems. For the purpose of this plan, we will define technology to include all electronic devices and software that are used to teach our students. This includes, but is not limited to, computing, measuring, and mechanized devices.

#### ▼ Funding

Availability of funding is an essential component of any plan. Funding for the initiatives and projects of this Technology Plan is expected to come from various sources including the Student Tech Fee, CUNY special project funding, City, State, Federal and institutional Grants, and the College operating budget.

For example, during each of the past few years the Student Tech Fee has provided approximately \$1,200,000 for technology related expenditures. This is a multi-year expenditure plan which ensures, for example, that equipment used by students is no more than four years old. Once it has been finalized and approved by the College Tech Fee Committee, a detailed Student Technology Fee Expenditure Plan for 2005-2006 be available for viewing on the College Web site. The Student Tech Fee will continue to be a major source of funding as this plan goes forward.

It is expected that grant funds, such as those from the Carl D. Perkins Act, will continue to be a source of revenue supporting this plan's objectives. Historically, Perkins grants have made \$250,000 available each year for educational technology related projects.

**While this Technology Plan establishes many goals and objectives, it is understood that successful outcomes are contingent upon the availability of appropriate funding and staffing levels.**

### III. Incorporation of Technology

#### ▼ Students

##### **Background**

The workplace of today demands employees who are fully knowledgeable about the presentation of information by technological means. Not surprisingly, these advances have become widespread around Queensborough. As such, it has become increasingly necessary for students to become adept with most of the technological resources at the College.

The use of the Internet for research and the implementation of software have become a large focus of many courses; we can expect our needs to increase in the future. The student e-mail system that has recently been implemented needs to become the primary method of communication among all students, staff and faculty. In addition to computers in facilities such as the Library, Instructional Support Services (ISS), and ACC, twenty Internet connected kiosks have been placed around the campus, enabling students to check and send email and do online course-work from anywhere at any time.

Students must become more aware of online resources with respect to online classes and course management systems (Blackboard right now), particularly upon entry into the college. The wireless system present throughout

the college needs to be nurtured so that it may become a part of students' receipt and delivery of information. And, as always, the computer labs and smart classrooms that students depend on need to be serviced, staffed and maintained.

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### Looking Forward

- ❖ *Utilizing hand-held technology and leveraging the campuses existing wireless infrastructure, we will seek to enhance the initial freshman experience thru the implementation of an automated advisement/registration/financial aid queuing system.*
- ❖ *The ACC, in conjunction with Students Services, will continue to offer student workshop training covering the email and Blackboard systems.*
- ❖ *Materials will be developed and disseminated at student orientation covering the technical services available at the College*
- ❖ *Web site banners will be created in a "Did You Know" format to keep students aware of new and continuing technology services*
- ❖ *Regular Web site surveys will be conducted to measure student awareness of campus technology services*
- ❖ *Materials will be developed and disseminated, and tours (virtual and real) will be conducted during ST-100 classes to increase student awareness of available technology services*
- ❖ *Web site Frequently Asked Questions (FAQ) materials, related to the email and Blackboard systems, will be refined and improved*
- ❖ *Through the Tiger Mail initiative the college will use email as a major means of communicating and disseminating information to students.*
- ❖ *The Information Technology (IT) Department will introduce a new service (Tiger Briefcase) that allows students to store files of their developing work on network storage for retrieval both on and off campus.*
- ❖ *The IT department will continue to staff a Tiger Mail Hot Line phone number to help students with email questions. IT will also help students with CUNY Portal problems.*
- ❖ *The ACC will continue to staff the Blackboard support line (BBSupport).*

### ▽ Student Development

#### Background

One very valuable component of the Tech Fee Plan at Queensborough is the *provisioning for and the utilization of Tech Fee Student Interns*. To date, over 250 students have worked as paid interns in this program, and we anticipate the employment of about 80-100 per year in the coming period. They have been employed in a wide range of academic and administrative departments. Among the tasks they have carried out have been rebuilding computers, providing help desk service for other students, programming, and photography and videotape work for the departments of the College. Students earn money on campus, gain valuable skills and resume material and they provide useful services to the campus.

A visit to the current Web site, a review of recent publications, or observing a recent video prepared for Partners for Progress, Commencement, or the Admissions Office shows first-hand the talent within our student body. Current students and recent graduates are responsible for the design of Web pages, including the new Holocaust Resource Center site; photographs on the home page and other Web pages, publications, newsletters and local news media; the filming, and editing for online videos and Digital Video Discs (DVDs), some including student-created music; the graphic design and layout for several new publications; the staffing of the Tiger Mail help desk, and more.

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#### Looking Forward

*The Tech Fee Student Intern program will be continued. Funding for the program will continue to be provided through the Tech Fee.*

*In developing this Technology Plan the College is presented with an opportunity to create its own "incubator" of student Web talent, an in-house creative agency for institutional marketing. This on-site talent bank would also be a laboratory of practical experience for students enrolled in Art and Photography, Digital Art and Design, New Media Technology, even Music Electronic Technology.*

*Academic Advising has been working to develop a **My Academic Plan, (MAP)** for each full-time incoming freshman. Currently, this is a brief one-page hard-copy document, outlining student aspirations and goals in a rudimentary way. Over the next few years the MAP will likely be developed in several ways. First, it will become more universally applied, covering part-time and transfer students. Second, it **will be expanded and deepened**. **Third, it will be incorporated into the e-Portfolio**. This will require equipment and technical support staff.*

***The e-Portfolio is an on-line document package.** It will have several components. Among the first to be constructed and incorporated into the e-Portfolio will be the MAP, which should be expanded and refined. The e-Portfolio will include a constantly up-datable resume, examples of projects, skills or accomplishments, and reflective statements about achievements and goals. A large-scale demonstration of the e-Portfolio is being funded through Perkins for the 2005-2006 year for CIS and Music Electronic Technology. Some of the initial infrastructure and staffing will be obtained via this grant. As the e-Portfolio is expanded to other programs, the infrastructure will have to be correspondingly scaled upwards.*

## ▽ Library

### **Background**

The CUNY Library has migrated to a new system (the ExLibris's Aleph 500 Library System), which offers greater functionality. It governs acquisitions, cataloging, circulation, the online public access catalog, and serials management. New versions of Aleph 500 replace old ones at two year intervals. Library employees have been trained to work with the new system. Online Computer Library Center (OCLC) cataloging software and OCLC Interlibrary Loan software have also been upgraded on a continuous basis.

Since 2001 virtually all patron and employee work stations have been replaced with newer equipment and corresponding software. The Library has been put on a replacement cycle. All computers, monitors, and other computer related devices are replaced every four years. Also, there is now a procedure in place to create images for different systems and to upgrade operating systems and software as the need arises. There is now unlimited networked printing for Library employees and all patrons. The printers are maintained by Library faculty and staff, and the supplies are replenished by the Student Tech Fee.

The Library has participated in the CUNY-wide acquisition of databases which form an increasingly important core of information and have replaced many print sources. To facilitate the off-campus accessibility of these databases the EZPROXY server has been developed. In addition, with 2003-04 CCIP funding, all print reserve articles were converted to digital format. An Electronic Reserves server was developed for teachers to make such Portable Document Format (PDF) documents available to their students on a 365x24x7 basis. Both of these servers are maintained by Library employees. There is an additional Library initiative to convert older media such as disk recordings and Video Home System (VHS) tapes to Compact Discs (CDs) and DVDs.

The Library is presently circulating 30 Dell Latitude 600 laptops for in-Library use, with an additional 30 laptops available for circulation ten months a year, when not in use by Academic Advisement. The Library's Website has been redesigned to bring it into alignment with the College's Website. It contains many features of use to both faculty and students, including an online reference service, "Ask the Librarian" and DORIS (Directory of Recommended Internet Sources). The Library Website is an absolutely critical presence and has many hundreds of thousands of "hits" per year.

### **Looking Forward**

*The immediate focus will be on maintaining and upgrading software and hardware. The utilization of wireless technology for a complete inventory of the reference and circulation collections is planned for the immediate future, as is the facilitation of off-campus use of licensed resources by establishing a Queensborough-specific means of Remote Patron Authentication (RPA).*

*In order to keep pace with the burgeoning demand for Information Literacy classes, a second, state-of-the-art library classroom is planned, along with upgrading the current classroom space. Technological improvement could include smart boards, smart carts and media facilities.*

*The Library plans to extend current services in several ways. In addition to the provision of more laptops, the possibility of laptop loans for use outside the Library and for longer than two hours will be explored. New*

technology, enabling the patron-initiated document delivery system for Interlibrary Loan, will be made available to both faculty and students. In addition to the off-campus accessibility of digitized e-Reserves, Audio-Video (A-V) materials will be also be made available off-campus to members of the Queensborough community. As the types of technical services sought by patrons become increasingly complex, it is important that means of providing technical support during all hours that the Library is open be developed.

To address current problems the Library will explore ways to restrict what is now unlimited printing to ameliorate the growing burden on both finances and staff. Improvement of the heavily used contracted copy machines is also an important objective. They should be upgraded to state-of-the-art, and increased in number. The carefully planned and coordinated upgrading and increase of security technology will also be necessary. In addition, to foster the expansion of technological capacity it will be highly desirable to reshape the electrical and networking infrastructure. (To do this will require funding and implementation of our long standing capital outlay request for a \$13 million campus electrical upgrade)

## ▽ Instructional Support / Tutorial Services

### Background

Instructional Support Services is committed to the vision that the innovative use of technology is integral to excellence in community college pedagogy and student service delivery. Educational technology is seamlessly woven into every aspect of the ISS experience for students, tutors, e-tutors, staff and faculty alike.

Components of ISS' educational technology vision include:

- **iBoard:** iBoard is the department's 42" plasma screen that functions as an interactive electronic bulletin board for students to access online information, as well as a demonstration tool for Orientation and tutor trainings.
- **iPASS Distance Learning Lab:** home to the iPASS system development team, and the training arena for prospective e-tutors, the distance learning lab houses technology to support both development and training efforts.
- **The 3<sup>rd</sup> iteration of iPASS** has been implemented, a comprehensive Web-based application, integrating students', tutors', and faculty's ability to provide tutoring and test preparation.
- **A Teamboard interactive whiteboard and software** - a multimedia presentation system allows for tutor and e-tutor training sessions, faculty and staff development and presentations/demonstrations.
- **ISS Paperless:** Instructional Support Services has moved to a paperless model, with an entirely new swipe system database replacing forms and paper tracking.
- **ISS Wireless:** Providing students and tutors access to, and training in the use of, wireless technology through the center's 2 wireless hubs and 30 wireless laptops.
- **ISS Computer and Technology Center (CTC):** a 32-workstation hard-wired computer lab complete with a library of content area and writing-based software.

Funding for ISS initiatives has been provided by varying sources including: the NY State Department of Education, Coordinated Undergraduate Experience (CUE) initiative, and the Queensborough Student Association (QSA), Queensborough Tech Fee, and tax-levy funds.

### Looking Forward

*Where finances permit, study the integrative uses of technology across academic support services including:*

- ❖ *Uses of interactive touch-screen displays in learning centers. This will eliminate messy paper postings and bulletin boards and free up front desks as on-site students are directed to locate information by themselves.*
- ❖ *Development of innovative uses of wireless technology. As academic support services departments are the laboratories where students not only acquire a better understanding of course content, but also those strategies and tools that enable them to learn HOW to learn new and difficult material, there should be uniformity in efforts made to seamlessly integrate the use of wireless laptops and PDA's into tutoring, study skills, and other strategic learning sessions.*
- ❖ *Institutionalization of iPASS distance learning technology and instructional support. By Fall of 2006, the iPASS system will be ready to roll out for production to support the writing needs of the Queensborough student body, creating a 24/7 academic support services delivery system, catering to*



*the needs of traditional and non-traditional students alike, designed to support English, Writing-Intensive and learning communities coursework, hybrid and fully-online distance learning coursework, and ACT/CPE Writing Exam Prep, as an augmentation to face-to-face tutoring.*

- ❖ *Increased use of digital video and audio taping and editing. To augment face-to-face tutoring, as well as e-tutoring services, academic support services departments should utilize digital video and audio taping and editing of tutor trainings, orientations, and academic support workshops so that tutors and students can access streaming vignettes at their own convenience via Website to enhance their learning experiences.*
- ❖ *Institutionalization of consolidated tutor / e-tutor training program via online venue. The Perkins III grant has allowed ISS to develop and implement a consolidated tutor training venue, providing not only bi-annual Orientation/Foundations of Instructional Support training, but a rich weekly program of in-service training for all tutors, on-site, campus-wide. Through iPASS, a similar certification and in-service training for e-tutors is being developed.*
- ❖ *Development of a common annotated bibliography of online instructional resources. On its Website, ISS has developed a complete collection of links to textbook Websites for every text used at the campus, as well as a Cool Links page to interesting, dynamic and informative addresses on the Web to help students further practice their learning skills across different curricula.*

## ▽ ADA – Disabled Student Services

### Background

Queensborough has been exceedingly proactive addressing the issue of technology and disability services.

The College approach has been twofold, which includes 1) Americans with Disabilities Act (ADA) compliant workstations in all labs for student use, and 2) a centralized Services for Students with Disabilities (SSD) Lab which provides individualized tutoring, a study lab, assistive technology and a testing center that administers exams with reasonable accommodations.

- ADA Workstations (financed through CCIP and Tech Fee) – Each facility that has group instruction using computers and each location that has computers for student use has a minimum of one ADA workstation which includes: a height adjustable table, one large computer monitor, text enlarging software and scanning and screen reading software. Additional software and alternative input devices are maintained and are available through the office of Services for Students with Disabilities.
- SSD Lab – This is the centralized support service lab located in L 115 where students with disabilities receive testing accommodations, tutoring, and utilize the assistive technology for the purpose of class assignments, homework, independent study and research. All workstations in the testing center are height adjustable and complete with a full array of assistive technology. In addition students receive training in the utilization of specialized software. Laptops are available for classroom use (as deemed necessary for accommodation purposes) as are closed-circuit televisions (CCTVs) as needed. Braille services are provided in cooperation with some of our CUNY partners.

The SSD lab is primarily funded through ADA/504 funding and Tech fee.

The Learning Disability Specialist in the SSD office also specializes in assistive technology and is available for staff as well as student training.

In addition to the above-described programs, the External Education Program for the Homebound has historically provided access via phone, and computer to students who, for disability reasons would not otherwise have the ability to obtain a campus-based education. Despite the loss of **grant** funds, the College remains committed to providing services to **reasonably** accommodate the needs of those students historically served by the Homebound Program.

### Looking Forward

*Technology serves an ever-growing role in the provision of services to students with disabilities as defined by the Americans with Disabilities Act who are eligible for reasonable accommodations under title II of this Act.*

*As the result of technology and more specifically assistive technology, students have benefited and are more readily able to gain access to the classes, programs and activities of the college community. Many of the students*

who historically may have required readers or scribes now have the opportunity to utilize voice recognition or screen reader technology, enabling them to pursue their education and eventually their careers with greater independence. Similarly, students have benefited from screen enlarging software, as well as tutorial and teaching software designed for special needs.

With the passage of Chapter 219 (alternate format textbooks), the need for assistive technology will increase both on and off campus.

**As an objective of this Technology Plan the College will provide classroom-based closed captioning when necessary to accommodate the hearing impaired. In addition, a text only (ADA compliant) version of major portions of the College Web site will be online by the Spring 2006 semester.**

It stands to reason to anticipate that technology will continue to provide an increasing role in the educational process as well as in providing accommodations to students with disabilities in the college community.

To further the awareness and use of adaptive instructional technology, The Offices of AA and Services for Students with Disabilities should conduct outreach and educational activities to inform faculty, staff as well as students on the availability of adaptive instructional technology for use by those with documented disabilities.

## ∇ Academic Computing Center

### Background

In support of all academic curricula, The Academic Computing Center (ACC) was established in March of 2000. The ACC provides both educational technology facilities and services. **Facilities** include: **student computer lab**, **faculty development center**, and **multimedia classrooms** with instructional presentation technology. **Services** provided include educational technology **workshops**; individualized **training and support** to both students and faculty, **consulting** for academic computer related purchases; **Web design** and implementation, including the College Web site, Department Web sites, and course Web sites using both Blackboard and conventional Web site implementations.

### ACC Facilities

The Academic Computing Center provides state-of-the-art computing facilities including:

- The **Student Computer Lab** provides access to computers and application software for thousands of students each semester. Students will find access to, and help with, most application programs required to do their course work.
- **Faculty Development Room:** This area provides faculty members with access to multimedia hardware and software as well as individualized help from the ACC staff.
- **Multimedia/Smart Classrooms:** The ACC maintains and schedules four multimedia classrooms that serve workshops, regular classes from academic departments, and ad hoc bookings from both administrative and academic departments.
- **Multimedia/Smart Podiums:** The ACC maintains and schedules mobile Smart Podiums that have been deployed to designated areas throughout the campus. The podiums are used by various academic departments to deliver classroom instruction.

### ACC Services

- In addition to Internet access the ACC makes available on its computers, **application programs** and data files to support students in all curricula. At the request of faculty members we currently support programs utilized for instruction in various disciplines including Accounting, Art, Astronomy, Business, and varying Technologies.
- **Workshops** as well as individualized help are provided for both students and faculty covering such topics as the use of application programs, email, and the Blackboard course management system.
- **Blackboard** – Web-based course management system - there are online materials available for more than 180 Queensborough courses. Each semester, more than 2,400 student registrants have access to these materials 24x7 via the Blackboard course management system. The ACC handles all student and faculty inquiries related to Blackboard.
- **Web site** – see below

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## Looking Forward

### *ACC Facilities*

- ❖ *The Academic Computing Center will work with Academic Departments to make sure that the software available in the Student Lab supports the academic program.*
- ❖ *The Academic Computing Center will complete the replacement of all of its computer systems in the Student Computer Lab according to the scheduled Tech Fee Plan replacement cycle, so that students will have access to the most recent hardware and software.*
- ❖ *The Faculty Development Room will be updated to provide access to scanners and a high quality large color printer.*
- ❖ *The ACC will continue to coordinate Tech Fee and other academic technology expenditures, and campus smart room installations.*

### *ACC Services*

- ❖ *Workshops – in addition to the typical cadre of workshops offered, the ACC in concert with CETL will develop and offer discipline-specific workshops in an effort to assist additional faculty members with the development of individual and course related Web sites.*
- ❖ *Blackboard – the ACC will continue to be the main point of contact for all Blackboard related issues. Additional multimedia tutorials will be developed to assist users. An e-Portfolio system will be established as an add-on to Blackboard the system*
- ❖ *Web site – see below*

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## Web Site

### **Background**

The College Web site has become a primary means of communication and dissemination of information and services. The Academic Computing Center has primary responsibility for the design and day-to-day update of the Web site, while the Office of Information Technology is responsible for administrative Web site applications and infrastructure.

Recent Web site enhancements include:

- Linked online Advisement , Scheduling, and Registration
- Conversion of the entire Web site to a new theme and navigational structure
- Special sites for the Art Gallery and Holocaust Center
- Online membership for the Art Gallery, Holocaust Center, and Alumni Association
- Online Directory and Job Database
- Online tutorials related to using Tiger (Student) Email and Blackboard
- Deployment of a Web site search appliance (Google) to facilitate more accurate search results as the number of documents on the College Web site grows.

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### **Looking Forward**

*An objective of this plan is to study and improve the effectiveness of the services provided to the Web site's three major constituents Prospective Students, Current Students, and Faculty & Staff.* To help achieve this, monitoring software (Web Trends) will be used to perform Web site analysis and report generation. Also, regular surveys will be deployed to help establish and improve the level of satisfaction by site users.

*Web site services already identified for addition or improvement include:*

- ❖ *Web Server infrastructure – the College's aging Web servers will be replaced with up-to-date redundant servers with automatic load balance and failover.*
- ❖ *Online Registration for the CPE Exam*
- ❖ *E-Portfolio – providing a place for students to showcase their best work, and to facilitate the assessment of that work for accreditation purposes. Grant funding for an e-Portfolio pilot project has recently been secured.*
- ❖ *My Academic Plan (MAP) – This will provide a means for students to closely follow their own progress, while interacting with advisors and counselors, as they move through their curriculum.*

- ❖ *A Web site content management system will be deployed to empower those who wish to edit and update their own Web materials.*
- ❖ *Information for High School Counselors*
- ❖ *Fundraising*
- ❖ *A new design for the Performing Arts Center (Q-PAC). Also, online ticket sales and promotion is currently being outsourced, but a means for bringing this in-house is being studied.*
- ❖ *Centralized digital asset management to make the College’s fast-growing digital media collection (including photos, audio, and video) accessible to those who need it.*

*In addition, an active campaign will be mounted to encourage more faculty members to create their own academic Web sites that both showcase their work and serve the courses they teach.*

## ∇ Marketing

### Background

The College Web Site is the backbone for the College’s marketing and communications program and can contribute directly to:

- Increasing and insuring student retention
- Building enrollments in degree programs and continuing education programs
- Showcasing the College’s resources (Art Gallery, Performing Arts Center and Holocaust Resource Center) and providing a platform for fundraising.

Working collaboratively, the Offices of Marketing & Communications and the Academic Computing Center are committed to the presentation and delivery of information on the College’s Web site that is user-friendly, current and accurate as well as dynamic, attractive and relevant. By creating common “branding” components, efforts are in place to “marry” print publications and Web communications. The recent hiring of a full-time Web designer and an Assistant Director of Marketing & Communications will contribute significantly to advancing our mutual objectives.

The shared foci of these offices are the College’s Home Page, online calendars, NEWS and EVENTS, and two of the three “secondary” home pages that emerged from the recent redesign of the Web site: FUTURE STUDENTS and CURRENT STUDENTS. As our “front door” to the general public, the Web site offers opportunities to target communications with several key constituencies (students, parents, counselors, alumni, donors, friends, businesses, and others) via these venues.

### Looking Forward

*Future plans for using the Web as a marketing tool also include:*

- ❖ *Electronic newsletters, with targeted messages and “blasts” to key constituencies such as donors, QPAC supporters, Holocaust Resource Center members, alumni, newly accepted students, etc.*
- ❖ *Launching of a College’s SPOTLIGHT ON SPONSORS - Solicitation of gifts might be assisted by offering donors visibility and public appreciation on the Web site.*
- ❖ *Opportunities for immediate input and action by the visitor to the Web site. For example, Live Person responses during peak usage time such as advisement and registration periods, o targeted polling with immediate feedback, and piloting online “college fairs” for prospective students.*

## ∇ Continuing Education

### Background

Queensborough’s Continuing Education program provides a wide variety of noncredit, vocational and professional development, certificate programs, on-line courses and recreational offerings.

Continuing Education facilities and services include:

- \$10,000 investment in the facility in order to bring the computer lab up to date with advanced technological efficiency, new programs and software; the number of workstations increased by four bringing the capacity to 24 workstations.
- Computer lab designed to accommodate employee training

- ◇ Utilized for advanced computer courses focusing on specific software knowledge. This includes nearly 80 courses with software applications: Examples are: Interior Design, Computer use, Auto-Cad, Digital Photo, Finance Bookkeeping, Medical Billing, etc.

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### Looking Forward

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- ❖ *Make Web-site more user-friendly with more information and better navigation for course descriptions.*
- ❖ *Increase services and programs for business tech “high end” and workforce needs*
- ❖ *Continue to work on establishing Blackboard access (CUNY wide collaborative project in progress)*
- ❖ *Establish On-line registration by Fall 2006*
- ❖ *Increase the number of on-line offerings and access.*
- ❖ *Create courses to address the needs of seniors using computers and the Internet*

## ∇ Development and Alumni Relations

### Background

In addition to our daily use of word processing and spreadsheet programs, the Office of Development and Alumni Relations utilizes Raiser’s Edge, a robust application which contains all donor and alumni records, including giving history, employment and other vital biographical information. Reports generated through Raiser’s Edge enable the department to track fundraising efforts, matching our goals to those stated in the strategic plan, and allow us to prepare the Voluntary Support for Education Survey (VSE), which is submitted both to the University and the Council for Aid in Education (CAE).

Recently, the University has assisted us with our use of Raiser’s Edge by hiring a Raiser’s Edge expert who provides customized training, hosting the application on an Oracle server housed at CUNY (expanding our capability to scan and save large amounts of data in each record), and purchasing extra modules that assist with our sophistication in mining our data.

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### Looking Forward

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*As the College’s Website has evolved, the Alumni Relations Office now receives a small number of memberships and other donations via online systems, which create initial automatic “thank you” emails to the donor. Our staff then verifies the donation and updates information in Raiser’s Edge. As online giving becomes more prominent on the College’s home page, we expect that online donations will rise.*

*The Department is also increasing its use of email blasts to our alumni. While we currently have active email addresses for roughly 4,000 of our 45,000 alumni, we expect that number to rise as our efforts to capture this data increase.*

## ∇ Faculty

### Background

As with most colleges, Queensborough has faculty members who run the gamut from believing that technology has no place in the classroom, to those that rely on it every day. The College has made great strides, as evidenced by the fact that over the past four years technology related workshops have seen more than 500 attendees. Still, we have a long way to go before we can say that the majority of faculty members embrace the use of technology for teaching. Every faculty member has a computer on his or her desk, and every classroom has both wired and wireless Internet access.

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### Looking Forward

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*Key to the success of our use of technology in instruction will be the level of skill and comfort our faculty have with it. Faculty development efforts must be two pronged: familiarity with the potential and technical aspects of hardware and software applications; and most importantly, the pedagogy of instructional technology must be discipline specific with faculty engagement in research, development and application of it to enhance student learning. The effort to increase faculty participation must be led by programs such as CETL and the ACC, with funding support from institutional grants as well as individual faculty development grants. The focus on grant funding will be critical to the support of training that may be accessed by our entire faculty.*

As noted earlier, the College's Strategic Plan calls for CETL and the ACC to support faculty development in pedagogy and the use of educational technology. Via the Technology Survey we learned that 97% of responding faculty considered faculty development to be a top priority. Therefore, support for faculty development will be provided in a number of ways through this Technology Plan. For example:

- ❖ ***In concert, CETL and the ACC will develop and deliver discipline-specific workshops focused on pedagogy and the incorporation of technology in the classroom. Teachers expert in each discipline will assist in workshop development and delivery so that the maximum benefit will be realized.***
- ❖ ***Dynamic Web sites will be created which will provide ongoing resources for teachers in each discipline, as well as a means of continued communication with discipline and technology experts.***
- ❖ ***Beginning in the summer of 2006, a special summer institute will be offered, further developing the uses of educational technology in the classroom.***
- ❖ ***The Faculty Development area in the ACC will be enhanced to provide access to additional technology services such as slide and video tape conversion, audio recording and editing of classroom lectures.***

## ▽ Pedagogy

### **Background**

While past technology-related workshops addressed some pedagogical aspects, they more often emphasized the technology itself. Workshops focusing mainly on why, when, and where to use technology in teaching are needed for Queensborough to move forward.

In 2003 when the President of the College formulated the mission of the Center for Excellence in Teaching and Learning (CETL) he earmarked the study and dissemination of community college pedagogy as a major objective. While technology did not initially play a large part in CETL, the use of technology has grown steadily this past year with the development of a CETL Web site and delivery of technology related workshops.

### **Looking Forward**

***The primary objective of the technology plan – in relation to faculty and pedagogy- is to establish guidelines for providing and optimizing technology that serves the pedagogical needs of the College community. Additionally, the plan intends to provide faculty current and suitable technology, computing devices, training and support so they can accomplish the expected instructional and administrative tasks. While a plan should establish a concrete course of action it should allow flexibility, since technology evolves rapidly and we can not predict the technology of tomorrow. In addition, future technology investments are dependent on previously implemented infrastructure and technology initiatives.***

*Starting with the space in which pedagogy manifests itself, the plan aims to equip the classrooms with fixed instructional technology. Planning and implementation of the instructional technology in the classroom will be guided primarily by pedagogical necessities and in cooperation with faculty who have used technology in the classroom.*

*To converge towards these technological goals- within the financial parameters of the college and in a prudent manner- the College will:*

- ❖ ***Conduct a comprehensive and systematic inventory of technology and support services available for faculty use***
- ❖ ***Design and implement a mechanism for annual dissemination of information about instructional technology and support***
- ❖ ***Better advertise the procedures by which instructional staff may request the use of technology and services***
- ❖ ***Utilize centers such as CETL and ACC and promote periodic informal round table discussions, presentations, etc. centered on pedagogy and instructional technology for stimulating intellectual curiosity and collegial partnerships leading to instructional innovation***
- ❖ ***Attempt to support faculty technology requests – electronic and computing devices- related to research in pedagogy and improvement of instruction, and explore grant funding to support these requests.***

*Academic support services must engage in active partnerships with faculty so that students do not perceive a rift between technology in the classroom and technology in learning labs, and so that all technological initiatives which support community college pedagogy and teaching & learning become part of the curricular fabric of the*

*institution, the mindset of students, the research base of CETL, and the funding and revenue streams which can be newly brought into the College.*

## ∇ Classroom Technology

### Background

Through the implementation of the College's Tech-Fee Plan we have been actively replacing all laboratory computers with state-of-the-art systems and software. Year Three (2004-2005) of a four-year replacement cycle has just concluded, so that by next year no campus computer facility will contain systems older than four years. After Year Four the plan calls for us to begin the replacement cycle again. This Technology Plan supports the Tech-Fee Plan's continuous replacement policy.

The Tech-Fee Plan has also yielded a strategy for the installation of instructional presentation technology. During the first three years the College's four large-venue classrooms were outfitted with the latest instructional technology.

### Looking Forward

*Beginning in year four the plan calls for the installation of smart podiums in all 175 classrooms on a phased-in basis. Over time, depending upon funding, this approach will **make multimedia presentation technology available to all who teach at the college.***

*The technology installed in each classroom will be robust, yet simple to use, secure and centrally administered via the college network. Each instructional presentation system will contain a projector and screen, Internet connected computer, touch monitor for annotation, document camera, DVD/VCR(Video Cassette Recorder) combination player, a port for laptop connection, speaker system, and a control panel for selection of video and audio inputs and volume. Access will be controlled via college-ID swipe lock.*

*To complement the Tech-Fee plan, this Technology Plan will provide for faculty training in the technical and pedagogical uses of the new classroom presentation technology. Through CETL and the ACC, faculty development programs and institutes will be initiated, as called for in the College's Strategic Plan.*

## ∇ Wireless Environment

### Background

Several years ago the Technology Committee formulated a plan to launch a pilot program with Electrical and Computer Engineering Technology students where a laptop was required and financial aid eligible. We looked into a purchase program between a vendor and the College that would provide necessary laptops at a greatly reduced cost. This project did not receive necessary approval from CUNY, so we were never able to put it into practice.

Meanwhile, the Technology Committee of the College established the goal of having a wireless network that enabled any room to become a computer lab by rolling in a laptop cart (containing 24 laptops). This was an effort to stop the spread of fixed computer labs to improve room utilization.

While the goal was laudable, what we learned was not to replicate the process. The problems with this approach are many: "it takes too much time to hand out laptops at the beginning of class and get them back at the end", making this suitable only in 2-3 hour classes; you need a person in the room to hand laptops out and take them back, and to maintain security; laptops are more fragile than other types of computers; the short battery-life of laptops, and the battery replacement costs are a problem especially in a classroom setting; laptops cost much more than comparable desktops. While we currently share a rolling laptop cart between two rooms, there are no plans to increase this practice.

However, initiated by the rolling laptop project, a wireless network now blankets the entire campus, and its use is increasing. For example, the wireless network currently enables un-tethered loaner laptops and printing in the Library, Internet kiosks placed around the campus, and student, faculty, and staff access from their own wireless devices.

Furthermore, we have come to recognize that students and faculty need access to online resources, services and utilities at times when they are not at a desktop or a hard-wired connection of some kind. Wireless provides ubiquity on top of utility. Queensborough has provided both wired (for fixed work stations and connections) and



wireless (for notebook, PDA and other kinds of devices) access, coexisting and ultimately saturating the entire campus so one can have both anywhere.

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### Looking Forward

*Queensborough should begin exploring the potential of Wireless Internet Learning Devices (WILDs) to improve student learning, especially within important but difficult concepts in mathematics, science, and other subject areas. Emerging handheld devices offer the opportunity to build on the success of graphing calculators in the math curriculum and the appeal of Pocket PC or Palm devices in many curricular areas. The lower cost and easy portability of handhelds (compared to laptop or desktop computers) may make 1:1 student-computer ratios affordable, and thus enable frequent, integral use of computers in classroom learning. Further, wireless communication may enhance classroom workflow, assessment, and collaboration.*

## ▽ Online Instruction

### Background

Queensborough, for many years, has had a pioneer program in distance education in our Homebound Program for those learners with special needs who could not be present on campus. For the past three years the college has been offering online classes in Web enhanced, partly online, and fully online modes. Both the college and CUNY provide the infrastructure, hardware and software and training for online offerings. The number of classes involved is in the dozens and the number of students who have been enrolled in classes using online instruction in whole or part number in the thousands. However, as evidenced by recent faculty survey responses, current faculty participation levels, and discussions with faculty members (especially those who have tried it), for the near future Queensborough will take a cautious approach to Distance Education.

The following table shows the progress of Blackboard usage over the past few years

Blackboard	Fall 2002	Spring 2003	Fall 2003	Spring 2004	Fall 2004	Spring 2005
Active Courses (under development)	124	164	150 (16)	150 (6)	178 (28)	185** (24)
Teachers	62	77	83	83	83	85
Students	2996	3629	3958	3588	2340*	2432*

\*Denotes removal of duplicate student entries across all available courses

\*\*Eight classes are Fully Online and ten are Partly Online

The College has recently established an Academic Senate standing committee that will work with the Office of Academic Affairs to recommend a more formal and comprehensive Distance Education program.

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### Looking Forward

*In addition, through this Technology Plan, the college will provide support for an increase in individual Distance Education course offerings; and support for University-wide Distance Education initiatives such as the Online BA (Bachelor of Arts). Towards the end of this plan, the breadth of course offerings will be re-evaluated to determine if Distance Education degree programs are appropriate at that time.*

## ▽ Center for Excellence in Teaching and Learning (CETL)

### Background

CETL worked with the Academic Computing Center to develop and launch a Web site for the center. Discussion boards were added, which will be used in the fall to encourage online exchange of information and discussion related to pedagogy and Scholarship of Teaching and Learning (SOTL). The site as a whole is under continuous development in order to expand the resources there to support faculty and encourage pedagogical research.

In the academic year 2004-2005 CETL held a variety of faculty development workshops designed to familiarize faculty with current research on student learning and instructional technology and to assist faculty in pedagogically effective applications of these technologies. These included:

- Benefiting From Blackboard: The Basics of Instructional Design for Blended Classes
- Virtual Voices: Effective Class Discussions in E-Space

- Winter Web Boot Camp
- Designing Web Pages for Instructional Use (a 3 day intensive)
- Blackboard Winter Boot Camp
- Preparing your Blackboard Courses for Spring Semester (a 3 day intensive) Pedagogy & Technology: Blackboard Mid-Semester Check-in: & How to design an Online mid-semester course feed-back survey in Blackboard
- Pedagogy & Technology: Teaching with Blogs

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### Looking Forward

*During summer 2005 CETL worked with the ACC to contact the chairs of the Sociology, Business and History departments to enlist their involvement in designing instructional technology projects/plans for their departments. In the Spring 06 semester CETL-ACC will work with three other departments, to be announced.*

*In the Fall of 05 CETL will work with the faculty who were selected to pilot the e-Portfolio (as part of the Perkins Funded project) in their classes in Music and Business, to help them develop assignments that will give students opportunities to demonstrate their achievement of general education goals in work that can then be added to the e-Portfolio. CETL will design a session for the October Conference of the College that will present the e-Portfolio pilot project to the faculty and will feature presentations by involved faculty and discussions of issues of pedagogy, faculty/student buy-in and how to expand the project in the future.*

*Workshops are planned on the following teaching technology topics:*

- ❖ *Workshop being coordinated with Institutional Research (IR) to present a new text analysis software package for faculty researchers*
- ❖ *Advanced use of PowerPoint with focus on the Pedagogy of PowerPoint*
- ❖ *Workshop on using EndNote software for faculty researchers*
- ❖ *More pedagogy-focused sessions on Blackboard*

### ∇ Assessment

Over the last six years, the College has focused on assessment as a vital and integral aspect of its self study process. As this Technology Plan evolved, assessment has emerged as the next necessary process to advance pedagogy and tools for effective student learning. The College must assess the impact and outcome on learning of equipment, pedagogy, and instructional delivery formats. Outcome assessment of online courses has been incorporated in our strategic plan.

The importance of student and faculty readiness to maximize the use and impact of instructional technology is clear. The need to assess students' computer literacy –their skills and comfort level--resulted from faculty observations of the wide range of skills presented in the classroom and in on-line formats for instruction and learning. The need for faculty development programs and activities to support training in both pedagogy and instructional technology was reflected in comments from faculty both experienced and interested to learn.

### ∇ Staff & College Laboratory Technicians (CLTs)\*\*

#### Background

The **technical staff**, whether in the Information Technology Department (IT), the Academic Computing Center, or the many departmental computer labs and smart classrooms, has felt increased pressure to satisfy the ever-growing technological needs of the college. We can expect these needs to increase in the future and must staff accordingly.

College Laboratory Technicians (CLTs), and other persons responsible for technology, should come together regularly to discuss issues of instructional technology in their fields and to share best practices in technology systems and software. Training opportunities on and off campus should be available to develop their skills in the support/maintenance/security of technology in their department facilities.

The vast usage and expansion of course management systems and student e-mail depends on a large enough **support staff** to handle future expectations. Any further developments of technology would require that necessary resources are in place to supply support at the proper level. For example, with Web-based classes and Web-based self service the college is entering the world of 24x7 services. Recognizing this, the IT department has recently initiated weekend 9:00 AM to 5:00 PM support for the College Web Site, Email Systems and Network operations.

**Office staffs** are required to deliver increased technical services to both faculty and students. It is therefore important to provide opportunities for updating and improving their technology skills.

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### Looking Forward

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*Staff needs recognized by this Technology Plan include:*

- ❖ *Updating the skills of technical staff is essential*
- ❖ *As funding allows, proper support staffing levels will be maintained.*
- ❖ *For Office Staff, continue the practice of conducting workshops covering intermediate and advanced uses of Office software products as well as new tools that allow them to work more efficiently.*

*\*\*At Queensborough, College Laboratory Technicians hold faculty status*

## ∇ Information Technology

### Background

The Office of Information Technology is responsible for Administrative Computing and Wired and Wireless Networks at Queensborough. This includes legacy systems like the Student Information Management System (SIMS) with all of its Queensborough-specific enhancements and the College Financial System. IT also develops and supports Systems that meet the specific needs of departments at Queensborough like the Faculty and Staff Adjunct Payroll system.

A significant effort has been made by IT to deliver Web and network based self service applications like Web Advisement / Scheduler / Registration and the Buildings and Grounds Work Order Request System. In Addition, the Faculty and Staff Email and Student Email systems are supported by IT as well as the desktop PC Help desk, CUNY Portal Help and Network Security.

In order to support the goals of the Technology Plan in the past four years the following infrastructure enhancements were made:

- The campus Internet connection speed was increased from 1.5 Mbps to 20Mbps to support video multi media and increased use of the Internet.
- A network connection was installed in every classroom and a campus wide wireless network was created which expanded the network infrastructure from 100 to 160 network edge switches connected to some 3,000 nodes. Over this period three quarters of these edge switches have been upgraded to the new 100mbps speed.
- This explosive network growth could only be supported by using sophisticated Remote Network Management Software tools. HP Openview software has been installed to meet this need. The wireless network is also remotely managed by a network appliance (the Cisco WLSE tool).
- Major network equipment is now isolated from power fluctuations by UPS (battery) units.
- A Spam Blocking Appliance has been installed
- Several network security devices have been installed
- Web based self service has expanded to link the Web Registration system to a Web Advisement and Web Auto scheduler functions.
- Weekend On Call support was initiated
- The Room Utilization software (Resource 25) has been installed and loaded with instructional facilities information.
- Campus desktop PCs are protected by Antivirus software that is automatically kept up to date

In response to campus needs, over the last four years, the IT department has created systems to:

- Initiate B&G work orders, Order Supplies and collect Course Objectives and Assessment data over the network.
- Provide the Office of Faculty and Staff Relations with an Adjunct Payroll System
- Convert Financial Aid “Book Vouchers” into a College Bookstore Debit Account
- Developed Academic Alert early warning system
- Supported the move to Compass PC based placement testing
- Automated Foreign Language Placement based on High School transcript information

- Track students on probation
- Track College Now students
- Automate the Counseling Center Log
- Track GED efforts
- Track Part-Time Staff leave and Timekeeping for the Personnel Office
- Provide faculty with an email roster for each of their classes
- Email grades to students as posted
- Support Black Berry devices

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### Looking Forward

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*In the next four years, contingent upon proper funding and personnel levels, the College should:*

- ❖ *Plan for an increase in network wired speed*
- ❖ *Move Wireless access to a higher speed to support multimedia.*
- ❖ *Run Web self service applications on clustered load balanced redundant servers.*
- ❖ *Upgrade its Email systems to the latest versions.*
- ❖ *Allow Students to change their Tiger Mail passwords.*
- ❖ *Install a Web grade-posting application.*
- ❖ *Control all campus PCs with PC energy usage management software.*
- ❖ *Select and install an Enterprise Spy ware/ Ad Ware solution*
- ❖ *Provide all students with network based storage (Floppy replacement)*

### ▽ Business and Financial Services

#### Background

Communication between the University and the College regarding budget allocations, expenditures, and revenue, is now largely in electronic format. Financial systems are monitored locally and centrally to ensure accuracy and accountability.

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#### Looking Forward

*The trend toward the electronic medium will expand to internal communications on budget and expenditures. Activities such as direct deposit of employee paychecks, on-line supply ordering, on-line room reservations, on-line printing services requests, and on-line B & G work requests are examples of the growing use of technology to provide user friendly and more efficient business services. E-Procurement, an on-line purchasing system, is underway, with full implementation planned for FY 06. As the use of technology in this sector increases, staff development in these offices will be needed, along with some support services for their clients.*

### ▽ Enrollment Services and Management (Document Imaging)

#### Background - Services

Over the past several years Queensborough Community College has been making great strides in improving enrollment services offered to both new and continuing students. Recent improvements include the expansion of on-line services in the following areas: registration, advisement and scheduling. Technology is a critical tool to be used to further enhance the enrollment services of the college.

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#### Looking Forward - Services

*Continuous improvement in the area enrollment services would include the following projects:*

- *Automated In-Person Customer Service System*
- *Call Center*
- *Financial Services System Analyst*

#### ***Automated In-Person Customer Service System***

*During peak in-person enrollment service periods (August, September and January), all offices experience an extremely high volume of in-person student foot traffic and thereby create a long waiting period for students to be served. In an effort to reduce the amount of time spent by students waiting on line, the implementation of a newly designed “DMV-like” advisement, registration, financial services, and bursar queuing system, complete with the utilization of hand-held technology using campuses*

existing wireless infrastructure, would seek to enhance the student experience by eliminating bottle-necks and frustration.

### **Call Center**

Another challenge faced by the college during peak enrollment service periods is the effective management of in-bound telephone calls. With the high volume of in-person student foot traffic and back-office paper work, the in-bound telephone calls are not being given the proper level of attention they deserve, thereby creating student dissatisfaction.

The implementation of a “call center” to be used only during the peak periods of August, September and January would be a tremendous “value-added” service for our customers. A phone bank manned by approximately 10 -15 enrollment services specialists who are cross-trained in all enrollment services areas would handle all incoming calls during this period for the following offices: admissions, academic advising, testing, financial services, registrar and bursar. Removing the constant ringing of telephones in these offices will allow for improvement with in-person customer service and back-office paperwork processing.

### **Financial Services Systems Analyst**

The use of technology has expanded in the area of student financial assistance over the last 10 years; however the college has not been applying technology to its fullest level within the day-to-day operation of the Office of Financial Services. The creation of a Systems Analyst position within the office would allow for the development of new initiatives, act as a liaison between the University Application Processing Center, the University’s Computing and Information Services department and the College’s Information Technology department, manage the daily/weekly interfaces of data in electronic format, provide statistical reports, and run all financial reports through the Office of Student Financial Assistance and the University Controller’s office. The creation of this position would enhance the service to students, increase the efficiency of the office and maximize the cash flow of the college.

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### **Background - Management**

An important aspect of managing our enrollment is managing the paper work associated with each student. In addition to managing the day-to-day flow of paper which comes into each student service office, there are also very strict federal and state regulations governing the area of record retention. The use of technology in this area would greatly improve our business process for all future and currently enrolled students, and assist the college in complying with record retention regulations.

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### **Looking Forward - Management**

In an effort to improve the management of day-to-day paper flow and record retention, it is recommended that the college embark upon the use of imaging. The Office of Admission is currently using the imaging technology used by the University Application Processing Center which assist with the processing of new student allocations to the college. However, imaging at the campus level would be of tremendous value to the college. Equipment and the deployment of personnel to manage the system would be needed.

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## **∇ College Initiatives**

### **Background**

The decisions that we make in this plan must be responsive to, and adequately support a number of College initiatives. In some cases, such as the addition of two required Writing Intensive (WI) classes, a probable substantial expansion in the number of Learning Communities, (grant-funded), and a possible move to a truly mandatory and expanded ST-100 course, the needs are increases of scale for programs that are not inherently technology-heavy in nature.

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### **Looking Forward**

In other cases, such as large-scale experimentation with and possible adoption of such ideas as e-Portfolios and My Academic Plan, the technical needs are large. Whether done in-house or outsourced, both initiatives will require hardware, software and support personnel to function in a proper way. Each could well become a significant financial and time component of any technological efforts by the campus.

Initial funding for a pilot of the e-Portfolio project is being provided by a Carl D. Perkins Grant. As the project expands additional funding will be sought.

## ∇ University Initiatives

### Background

Since our last Technology Plan, the University instituted a student Tech Fee, charged to all students (with the exception of College Now and Tech Prep), full-time, part-time, and regardless of degree status. This has become the major source of funding upgrades of existing instructional technology facilities such as laboratories, tutorial centers, and large venue smart rooms.

During the past few years the University has spearheaded a number of projects that ultimately affected how Queensborough operates. Centralized Portal, Light-Weight Directory Access Protocol (LDAP), e-Permit, and Blackboard services have all been established. With the introduction of COMPASS, Queensborough's placement exams are now PC based. CUNY "Big Buy" negotiations have saved the colleges money on major purchases of both hardware and software. However, in support of University initiatives, an ever-increasing percentage of Tech Fee funding has been devoted to centrally negotiated purchases.

### Looking Forward

*CUNY has made a strong commitment to incorporating the use of information and educational technologies in support of its mission and philosophy of an integrated University. CUNY is utilizing a variety of University-wide groups with institutional representatives selected by the President of the College.*

*Under the integrated University, technology policies and systems will be established for all colleges. Initiatives such as on line services (degree audit) will necessitate significant changeovers from those designed and created for/by Queensborough. First in the University to offer the complete continuum of on-line degree audit, advisement, scheduling, registration, and payment, Queensborough will have to commit significant financial and staff resources to adopt the system chosen centrally.*

*As the College is part of an integrated University, CUNY initiatives in technology systems (infrastructure, operating and software), will continue to influence if not drive changes in the way we develop technologically. With an Enterprise Resource Plan (ERP), our systems for human resources, student information management and financial services will be dramatically changed, along with the infrastructure to implement and support them. It is recommended that Queensborough be an active partner in these initiatives, and provide leadership and support for personnel as they are implemented. Representation on University committees related to this effort, and a designated ERP campus coordinator will be vital to Queensborough's participation in the decision process, as well as effective communication and organization of ERP implementation on campus.*

### **ERP**

*The CUNY-wide adoption of an **Enterprise Resource Plan (ERP)** software package is projected over the next few years. ERP is designed to foster best business practices and uniformity of reporting across all University units. It will entail a long training period, conversion and change in how some departments do business. Better organized information and easier access to and entry of information are anticipated long term gains. This major effort will have considerable impact on Queensborough personnel and staff processes during the period of its adoption, requiring a major effort by IT and by many campus offices to bring on-line. Such a system, once adopted, holds many potential benefits, and we will need to carefully explore them. In anticipation of ERP the College's network must be kept current to be in a position to carry ERP's projected transaction load.*

### **IT Steering Committee**

*Through the **Information Technology Steering Committee (ITSC)** the University collects and shares both what is known and what works best in the various units. It also develops and secures systems for use throughout the University. It is projected that the ITSC will further develop into a stronger and more effective effort to integrate information and services and achieve economies when scaling purchases. Queensborough will need to be responsive to the opportunities presented.*

### **SCORE**

*There is a **Steering Committee for Online Resources and Education (SCORE)**. Through this group there is now an effort to create an online BA for degree-completers offered through the School of Professional Studies. Queensborough provides representation to SCORE.*

**CUNY ONLINE**

*The university will be making efforts to gather, organize and disseminate information concerning the classes offered online at Queensborough and all other CUNY units. There is likely to be the development of degree programs offered entirely online by CUNY. Queensborough will be eligible for participation in such efforts that involve a consortium of faculty and classes. As more specific and advanced degree programs are developed, Queensborough may involve itself in them.*

*CUNY Online is also developing online resources for faculty involved in online instruction. Such efforts will produce an increasing number of resources and learning objects being made available to CUNY faculty both in the form of general information and resources and in materials specific to disciplines and academic areas.*

**IV. Security and Maintenance****▽ Security**

Network security is provided by the Office of Information Technology (IT). The world of network security has changed dramatically since the 2001 Plan was written. At that time the College could function with Antivirus software protecting the email server and a reliance on CUNY Central Office for the balance of Queensborough's security needs. Today every network connected to the Internet is constantly bombarded with Viruses, Worms, Spy ware, Ad ware, Spam and hackers. The volume of these attacks increases tremendously every year.

Two years ago the position of Internet Security Officer (ISO) was established in IT to formally address security issues. This position is dedicated to building and maintaining the defenses necessary to keep network problems to a minimum.

Having an ISO has allowed IT to install a gateway firewall as well as individual firewalls that isolate problems originating in student Computer Labs. Antivirus software is maintained on every campus desktop PC and updated daily. A Spam and Virus blocking network appliance has been installed while still sustaining network speed. A new Intrusion Detection/ Prevention appliance is being configured. The state of software security patches is monitored by another system. The wireless network exists as a logically separate network from the administrative network. Network traffic is constantly monitored for unusual patterns by sniffer software.

***Major goals relates to security during the next four years include: installing individual devices to handle Virus blocking and Spam blockings functions; rolling out isolating firewalls to protect all labs; installing an enterprise Spy Ware blocking device; increasing the network core switch capability to include Intrusion Detection functionality.***

**▽ Maintenance**

As technology is adopted by a growing number of people, maintenance becomes an ever increasing but necessary burden on resources. The ever increasing installed-base of equipment carries an increasing maintenance cost as the equipment comes off warranty. As this inventory ages, software updates become an expanding task and expense. When this equipment becomes obsolete and must be replaced to maintain the status quo it can entail a sizable replacement cost. Consumables, such as printer maintenance kits and ink cartridges, paper, projector bulbs, CDs & DVDs, are in constant need of re-supply.

Most new equipment is connected to the network. Behind the network wall jack is new wiring connected to a port on a network switch. The network infrastructure has grown tremendously with the increase of the equipment installation base. This constantly expanding infrastructure must be maintained and kept up to current standards.

Although it can add, sometimes significantly, to the cost of an item, it has been our practice to purchase extended warranties wherever possible. For basic equipment that is out of warranty, we purchase maintenance contracts for which we are billed for time and materials. More complicated equipment necessitates a maintenance contract with its stream of updates and access to a Help Desk.

***In the future, as funding allows, Queensborough will keep an inventory of spare components so that the educational process does not have to be put on hold due to lack of available educational technology.***

Remote Control Help Desk software and Remote Network Management tools have helped existing technicians work more efficiently but there comes a point when network/installation base growth must translate to additional support personnel.

The maintenance of our large and complex system has become a central point of discussions regarding support staff and their assignment as a department specific staff person, or as a part of a central support services facility. Beyond the technology infrastructure is the need for maintenance support for technology in instructional facilities associated with individual departments. Currently, courses offered through Blackboard and facilities established through the Tech Fee are supported through the ACC. Email, Web advisement, scheduling and registration, and a host of other applications are supported through the Information Technology Department (IT) seven days a week. As the installation and use of instructional technology grows, the question of how to provide on-going technical support must be addressed by the College community.

Also, as the technology infrastructure expands and is upgraded, repairs, conversions, and installations will inevitably impact existing services during these activities. Our year round schedule of fall, intersession, spring and summer sessions will pose an increasing challenge to the IT staff and their attempts to balance required upgrades with their inherent service interruptions with minimal inconvenience to the college community.

#### **V. The Future of Technology @ Queensborough**

*This Technology Plan involves a commitment that Queensborough will continue to keep abreast of developments in Information Technology and in Educational Technologies.* It will do so because of its commitment to developing and supporting excellence in teaching and learning. Where technologies become available and are demonstrated as effective in increasing the efficacy of instruction, they will be sought by the faculty and staff of the College.

We are committed to supporting the continual improvement of instruction at the College. Thus, it is projected that more classroom spaces and other learning environments on campus will have installations of a wide variety of educational technologies. Included in this would be technology for the presentation of instruction and for the participation of the learners in the activities occurring in the learning spaces as well as for learners to work on their own in groups or as individuals.

With the development and implementation of so many new platforms of and uses for technology to augment students' classroom and learning experiences, academic support services departments need to share, consolidate and integrate their technological initiatives with one another, to support the Strategic Plan of the College.

#### **▽ Promoting awareness and use of Technology**

*Queensborough will continue to provide for and further develop presentations and workshops and training programs for faculty, staff and students to promote awareness of the uses of the technologies, skills in using the technologies and the most effective adoptions and adaptations of the technologies in the instructional program.*

Queensborough will work with CUNY and other sources of support in an effort to further the access of students to the educational technologies and the resources available through them. This will include ongoing efforts to explore any and all means through which each student will have access to a computer.

#### **▽ Implications for policy, practices, and facilities**

*The Queensborough Technology Plan has been and will be under continuing review in the light of many factors including the development of new policies, practices and facilities at the College and within the University.*

In the design of any new buildings to be constructed it is expected that there will be a great presence of the information and educational technologies throughout the structures and in nearly all of their spaces in a variety of ways.

As the Academic Senate Standing Committees on Computer Resources and on Distance Education review college practice and resources and consider the mission of the college there may be actions recommended by the Academic Senate with regard to policies that may relate to the technology resources of the College. Such policies will be taken into consideration by the process that reviews this Technology Plan.



▽ **Etiquette**

Emerging from discussions among faculty and staff was the topic of etiquette when using technology. The exponential growth of technology such as email, and devices used by students, faculty, and staff were cited for their positive contribution to communication and learning as well as a challenge for classroom management and a harmonious campus environment. Policies regarding campus email, Academic Integrity, computer user responsibilities, and the Queensborough web site are in place. Consistently applied enforcement, especially as electronic communication is used as a tool for collaborative learning while more easily addressed in the classroom environment, will remain a collective responsibility when encountered in campus environs.

▽ **Support**

As the use of the information and educational technologies continues at the College it is expected that the current programs and sources of support for students, staff and faculty will be further developed to meet the increasing demand. With accent on the effectiveness of the instructional program support services will be expanded as to the forms and amounts available both on campus and online.

In numerous reports the importance of support service for students and faculty has been set out as a matter of the very highest priority for the realization of the potential for the programs involving the use of the technologies. This will continue to be given due consideration in future issues of the Technology Plan.

### Appendix I - Technology Statistics

Number of:	2001	2005
Internet connection speed	1.5Mbps	20Mbps
Wired network nodes	1,200	3,000
Switches - wired network access	100	160
Wireless access points	0	95
Classrooms with wired Internet connections	0	175 (all)
Fixed smart rooms (college)	0	11
Fixed smart rooms (departmental)	2	35
Mobile teaching podiums	0	12
Bb Courses	0	350
Students using Bb	0	4,700
Faculty Members using Bb	0	85
Fully online courses	0	14
Partly online courses	0	30
Faculty/Staff/Adjunct email accounts	725	1,100
Student email accounts	0	12,000