

QUEENSBOROUGH COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
CURRICULUM COMMITTEE

To: Emily Tai, Academic Senate Steering Committee

From: Philip A. Pecorino, Chairperson, Committee on Curriculum

Date: April 28, 2010

Subject: Monthly Report

The Committee on Curriculum has acted to send the following recommendations to the Academic Senate. Recommendations are made of the following types:

- I. Course Changes
- II. New Courses
- III. New Degree Program

I. Course Changes

DEPARTMENT of SOCIAL SCIENCES (2)

A. **SS-770 Computers, Society, and Human Values** : Changes in number, title and prerequisites

FROM:

Title [**SS-770 Computers, Society, and Human Values**]

Prerequisite: BE-122 (or 226), or satisfactory score on the CUNY/ACT Assessment Test[, and one course in computer literacy, computer science, or computer programming.
]

TO:

Title: SS-645 Computers and Ethics

Prerequisite: BE-122 (or 226), or satisfactory score on the CUNY/ACT Assessment Test

RATIONALE:

Title Change

1. This proposed title has become the most popular and recognizable across the US for a course with this content. The QCC course was one of the first in the country to be listed in a catalogue.
2. This number and title places the course within the discipline of Philosophy at QCC.
3. This title will support TIPPS equivalencies better
4. This title may attract more student interest from the Computer Science, Electrical and Computer Technology and Business (IT) areas

Prerequisite Change

1. The course has been taught each semester since Fall 06 for the CUNY Online BA and BS programs and with no prerequisites. Students appear to have no problem with the materials.
2. Most, nearly all, students entering QCC now have the background knowledge of computers and of the technology at the level needed to understand the issues and cases and to handle the required work which was not the case in 1986 when this course was first approved.

B. SS-900 series in Urban Studies Internship Program: Changes in course description and prerequisites

SS900 SERIES IN URBAN STUDIES INTERNSHIP PROGRAM

FROM:

SS-901—3 credits [6 hours (minimum) per week internship]

SS-902—3 credits [6 hours (minimum) per week internship]; Prerequisite: SS-901.

SS-911—6 credits [12 hours (minimum) per week internship]

Open only to matriculated students who have achieved a minimum cumulative index of [3.0], have completed [30] credits, and are recommended by the faculty. A student may register for a maximum of 6 credits in the internship program. The student is [required to pre-register for the program by contacting the supervisor during the semester prior to registration].

Students may not receive credit for both SS-901 and/or 902 and 911.

[Includes work at a community agency in such areas as cultural affairs, mental health, environment, recreation, urban government, educational institutions, etc., depending upon the interest of the student and the availability of positions. These internships are designed to offer the student part-time, on-the-job professional training. Students are placed with selected agencies for a number of hours per week, and participate in monthly lectures and/or weekly workshops and conferences on campus.]

TO:

SS901, 902, 911 Urban Studies Internship Program

SS901 - 3 Credits, requires 135 hours at internship site

SS902 – 3 Credits, requires 135 hours at internship site; Pre-requisite: SS901

SS911 – 6 Credits, requires 270 hours at internship site

Open only to matriculated students who have achieved a minimum cumulative index of 2.5 and completed 24 credits and/or are recommended by the faculty. A student may register for a maximum of 6 credits in the internship program. The student is strongly encouraged to contact the supervisor before the start of the semester in order to secure optimal and timely placement. Students may not receive credit for both SS901 and/or SS902 and SS911.

Internships offer on-the-job professional training in representative urban occupations such as social work, government, public interest activism, criminal justice, law, education, communications, health care, and cultural affairs. Students are required to

work a minimum number of hours a week, attend regular meetings with the internship supervisor, and participate in a campus-wide Internship Forum during the semester. A grade of pass/fail is based on work evaluations and a paper.

RATIONALE:

The pre-requisite changes in required credits and GPA will make the Urban Studies Internship requirements more similar to the norms found in other internship/cooperative education programs at QCC. For the twelve other internship/cooperative education programs on campus the number of required credits ranges from 3-36 with a mean of 16.6 and the required GPA ranges from 2.00-3.00 with a mean of 2.35 (Note: There is no GPA requirement for programs in the Art and Photography, Mechanical Engineering and Design Drafting, and Physics departments.)

By reducing the required number of credits and GPA more students will have the opportunity to participate in service learning and career-oriented work experiences that are available through the Urban Studies Internship Program prior to their LS (lower sophomore) semester.

The changes in the course description provide a more accurate summary of the internships currently available for students in the program.

The introduction of a pass/fail grading system will obviate the problem of assigning letter grades based on course requirements that are not strictly academic and quantifiable. Students will be graded on their completion or non-completion of the following: internship hours requirement, report from internship site supervisor, summary report of internship experience.

The change in number of internship hours required brings the course into line with the credit to hours ratio in the College's other cooperative education and internship courses.

II. New Courses

DEPARTMENT of HISTORY (1)

HI-118 Ancient Greek History 3 credits 3 class hours

Prerequisites: BE-122 (or 226) and BE-112 (or 205), or satisfactory score on the CUNY/ACT Assessment Test.

The course surveys the development of Ancient Greece from Bronze Age to the end of the Classical Period, discussing politics (for example the origin of democracy), culture (for example the origin of drama) and intellectual history. Reference will also be made to the influence of other advanced civilizations on Greece. Readings will be drawn from primary and secondary source material.

Rationale: This course responds to the importance of the topic of Ancient Greece in the current world (see popular culture: books, movies); a broad interest among students; fulfill the mission of the college of promoting intellectual inquiry and global awareness among students.

DEPARTMENT of PHYSICS (2)

A. PH-450 Introduction to Physics Research 3 lecture hours, 3 laboratory hours 4 credits

An introduction to current physics laboratory techniques, methods and approaches, such as near field optical diffraction, microscopy-based motion analysis, biophysical analysis, and optical spectroscopy. Other topics include laboratory safety; research integrity; scientific literature review; analysis and interpretation of data; and written and oral communication of results. In the second half of the course, students will be expected to carry out research projects under the direction of the instructor. Students will prepare a final written report and give a presentation of their results at an undergraduate conference.

Rationale: An increasing number of STEM students are becoming involved in undergraduate research at QCC. A capstone research experience will train these students in the quantitatively oriented skills needed for working in physical science and technology research laboratories. Also, it will provide them with an overview of high technology careers, such as physics, photonics, biophysics, and bioengineering. These skills and knowledge will give these students a distinct advantage when they enter the job force and when they continue on to 4-year degrees.

B. PH-900 Research Projects 90 lab hours 2 credits

Prerequisites: PH-201, PH-301, or PH-411 (and/or) co-requisites: PH-202, PH-302, PH-412, or PH-413

Students learn modern techniques, methods, and approaches and gain practical experience working in a professional physics laboratory. Students will meet with a coordinator to discuss design and execution of their research project at least once a month. Students will prepare a final written report and give a presentation of their results at an undergraduate conference.

Rationale: An increasing number of STEM students are becoming involved in undergraduate research at QCC. A capstone research experience will train these students in the quantitatively oriented skills needed for working in physical science and technology research laboratories. Also, it will provide them with an overview of high technology careers, such as physics, photonics, biophysics, and bioengineering. These skills and knowledge will give these students a distinct advantage when they enter the job force and when they continue on to 4-year degrees.

III. New Degree Programs

DEPARTMENT of BUSINESS

QCC/JJ DUAL /JOINT DEGREE PROGRAM: A.S. IN ACCOUNTING (QCC) AND B.S. IN ECONOMICS: FORENSIC FINANCIAL ANALYSIS (JOHN JAY COLLEGE OF

Purpose and Goals

Queensborough Community College (QCC) and John Jay College of Criminal Justice propose to offer an Associate in Science (A.S.) degree in Accounting for Forensic Accounting as a jointly registered, dual admission program with the existing Bachelor of Science in Economics: Forensic Financial Analysis (B.S.) at John Jay College of Criminal Justice (John Jay). Upon successful completion of the lower division at QCC, students will have a seamless transition to the upper division of the baccalaureate program at John Jay. The dual/joint program will offer increased educational opportunities for Hispanics, African Americans, Asians and other underrepresented minorities in the forensic accounting field who might otherwise be denied access to higher education. The collegial nature of the program will facilitate the transition to the professional portion of the curriculum. This proposed program addresses a recommendation of the Spellings Commission Report: “We want postsecondary institutions to adapt to a world altered by technology, changing demographics and globalization, in which the higher-education landscape includes new providers and new paradigms, from for-profit universities to distance learning.”¹

¹ Report of the Commission Appointed by Secretary of Education Margaret Spellings., “*A TEST OF LEADERSHIP Charting the Future of U.S. Higher Education*”, September, 2006.

² Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2008-09 Edition*, Accountants and Auditors, on the Internet at <http://www.bls.gov/oco/ocos001.htm> (visited 12/12/08).

³ <http://factfinder.census.gov>

The proposed program will afford Queensborough Community College graduates, most of whom are minority students and are traditionally underrepresented as professionals in management, business, and financial operations occupations, the opportunity and encouragement to succeed in these fields.

Need and Justification

Several factors have driven this program's development. First, according to the Bureau of Labor Statistics, the demand for individuals with an accounting background is expected to increase faster than average through 2016². With the increasing number of white collar crimes, there is growing demand for individuals who have additional expertise in the detection and prevention of fraud and other financial crimes. Second, in spite of numerous organizations and committees whose mission is to encourage and assist minority entrance in accounting fields, Hispanics, African-Americans and Asians are still underrepresented in management, business, and financial operations occupations. Third, the Hispanic population nationwide is now estimated at 12.6%³ but the percentage of 4

Hispanics enrolled at QCC in the Fall of 2009 was 25.94%⁴, the African-American population nationwide is now estimated at 12.3%³ but the percentage of African-Americans enrolled at QCC in the Fall of 2009 was 26.44%⁴ and the Asian population nationwide is now estimated at 3.6%³ but the percentage of Asians enrolled at QCC in the Fall of 2009 was 23.87%⁴. This proposed program will provide QCC students with the ability to prepare for a baccalaureate degree program in forensic accounting and seek employment in management, business, and financial operations occupations.

⁴ <http://www.qcc.cuny.edu/OIRA/OIRADocs/Factbook10/B.pdf>

⁵ *Demand for Forensic Accountants Step*, WebCPA Staff,

<http://www.webcpa.com/articleid=29607&searchTerm=forensic%20accounting>, Nov. 1, 2008.

Forensic Accounting

Forensic accountants are specially trained to identify evidence of fraud, investigate fraud, provide litigation support, and to prevent fraud. The education required combines knowledge of principles of accounting and finance, law and investigation techniques and theories of criminology and ethics. The Association of Certified Fraud Examiners (ACFE) which has been in existence since 1988 and currently has more than 20,000 members world-wide established a Certified Fraud Examiner (CFE) credential to provide individuals with evidence of expertise in the identification and prevention of fraud. The demand for accountants with this expertise has increased dramatically. With the growing problems on Wall Street, firms are hiring forensic accountants to uncover financial and ethical irregularities, determine who is responsible and assess asset misappropriation and resulting economic damages. This increase in demand has been corroborated by a recent survey conducted by the American Institute of Certified Public Accountants (AICPA). The results were reported at the 2008 AICPA National Accounting Conference on Fraud and Litigation Services: “Sixty-eight percent of the 5,400 members of the AICPA's Forensic Valuation Services Section who were polled say their forensic practices have grown over the past year. Of those respondents who reported increased demand, 67 percent cited computation of economic damages as the leading reason, followed by marital disputes (56 percent), and investigations of financial statement fraud (54 percent).”⁵ Further evidence of the growing need is that the AICPA announced at the conference that it will offer a new credential, Certified in Financial Forensics.

Curriculum

The proposed Associate in Science degree in *Accounting for Forensic Accounting* consists of courses which allow students to pursue further education and careers in forensic accounting, accounting, auditing, as well as financial operations and management fields. The proposed program will allow students to enter the upper division baccalaureate program in Economics: Forensic Financial Analysis at John Jay. The curriculum emphasizes basic accounting principles and provides a foundation in business organization and management. The program meets the general education requirements for the Associate degree at Queensborough Community College and also meets the general education requirements for the Baccalaureate degree at John Jay College.

QCC/JJ DUAL /JOINT DEGREE PROGRAM: A.S. IN ACCOUNTING (QCC) AND B.S. IN ECONOMICS: FORENSIC FINANCIAL ANALYSIS (JOHN JAY COLLEGE OF CRIMINAL JUSTICE)

| QCC A.S. ACCOUNTING | CR. | JJC EQUIVALENTS | CR. |
|---|--------------|--|------------|
| General Education Core | | General Education Core | |
| EN 101 English Composition I | 3 | ENG 101 College Composition I | 3 |
| EN 102 English Composition II | 3 | ENG 201 College Composition II | 3 |
| HI 110 Ancient Civilization OR | 3 | HIS 101 Global History: Prehistory to 500 CE | 3 |
| HI 111 Medieval to Early Modern Civilization, OR HI 112 Modern Civilization | | HIS 102: 500 – 1650 HIS 103: 1650 –Present | |
| MA 440 Pre-calculus Mathematics ** OR MA-441 Analytical Geometry and Calculus I or MA 260 Pre-calculus and Elements of Calculus for Business Students | 4 | MAT 141 Pre-calculus OR MAT 214 Calculus I | 3 + 1bl |
| LAB SCIENCE | 4 | LAB SCIENCE | 4 |
| FOREIGN LANGUAGE and/or Liberal Arts and Sciences * ¹ | 6-8 | FOREIGN LANGUAGE (or other general education/liberal arts and sciences requirements/electives) | 6 |
| SP 211 Speech Communication | 3 | SPE 113 Speech Communication | 3 |
| | | | 3 |
| SS 310 Sociology | 3 | SOC 101 Introductory Sociology | 3 |
| SS-410 Amer. Gov't and Politics OR CJ-102 Criminology | 3 | GOV 101 American Gov't & Politics OR SOC 203 Criminology | 3 |
| General Education Subtotal | 32-34 | Subtotal toward JJ Gen. Ed. Core | 32 |
| | | | |
| Requirements for the Major | | Requirements for the Major | |
| BU 101 Principles of Accounting | 4 | ECO 250 Introduction to Accounting | 3 + 1bl |
| BU 102 Principles of Accounting II | 4 | ECO 251 Introduction to Managerial Accounting | 3 + 1bl |
| BU 203 Principles of Statistics | 3 | STA 250 Principles and Methods of Statistics | 3 |
| BU-103 Intermediate Accounting I | 4 | Economics 200 Level Elective | 4 |
| BU-108 Income Taxation OR BU-111 Computer Applications in Accounting | 3 | Economics 200 Level Elective | 3 |
| CJ 101 Intro to Criminal Justice | 3 | CRJ 101 Introduction to Criminal Justice | 3 |
| SS 211 Macroeconomics or SS 212 Microeconomics | 3 | ECO 101 Principles of Economics or ECO 220 Macroeconomics | 3 |
| Accounting Major Subtotal | 24 | Subtotal toward Major | 24 |
| | | | |
| Electives | | | |
| Recommended: BU-108, BU-111 or BU-104 or a Humanities, History or Social Sciences elective and one Physical Education course | 2-4 | Elective toward the major or toward general education | 4 |
| TOTAL CREDITS REQUIRED FOR A.S. | 60 | TOTAL CREDITS ACCEPTED TO JJ | 60 |

Note: Students must take two Writing Intensive (WI) courses to receive the Associate Degree from Queensborough.

*Note on Foreign Languages and Literatures Requirements:

(a) A student who presents 3 or more high school units in one foreign language will be excused from taking any foreign language.

(b) A student who presents 2 high school units of the same foreign language will be required to take 3-4 credits of the same foreign language (level and sequence of courses are determined by students' previous knowledge and/or performance on departmental placement exam) or 6-8 credits in another foreign language

(c) A student who presents less than 2 high school units of the same foreign language will be required to take 6-8 credits of either the same foreign language (level and sequence of courses are determined by students' previous knowledge and/or performance on departmental placement exam) or another foreign language. Students are advised to consult the Foreign Languages and Literatures Department.

¹ Students who do not need to take a foreign language, or who decide to take their foreign language at John Jay, are recommended to take the following:

| QCC COURSES | Credits | JJC EQUIVALENTS | Credits |
|--|----------------|---|----------------|
| SS 211 Macroeconomics or SS 212 Microeconomics | 3 | ECO 220 Macroeconomics or ECO 101 Principles of Economics | 3 |
| CJ 102 Criminology OR SS-410 American Govt. & Politics | 3 | SOC 203 Criminology OR GOV 101 American Govt. & Politics | 3 |
| Humanities, History or Social Sciences electives | 3-6 | | 3-6 |

JUNIOR AND SENIOR YEAR – COURSES TO BE TAKEN AT JOHN JAY

| Course and Title | Credits |
|--|----------------|
| General Education (Liberal arts, Core, Distribution) and other Required Courses | |
| PHI 231 | 3 |
| Students who do not take either American Government and Politics or Criminology at Queensborough will need to take the second course at John Jay. | 0 - 3 |
| Students who do not take Macroeconomics at QCC will need to take ECO 220 at John Jay | 0 - 3 |
| Foreign Language (students who have met the foreign languages requirement may take other liberal arts and sciences electives) | 6 |
| Liberal Arts and Sciences elective | <u>6 - 15</u> |
| Subtotal | 21 |
| Prerequisite and Major Courses | |
| ECO 220 Macroeconomics | 3 |
| ECO 225 Microeconomics | 3 |
| Law 202 Law and Evidence | 3 |
| <i>Specialization C: Forensic Financial Analysis</i> | |
| ACC 307 Forensic Accounting I | 3 |
| ACC 308 Auditing | 3 |
| ACC 309 Forensic Accounting II | 3 |
| Two elective courses from Specialization in Forensic Financial Analysis: Economics 215 Economics of Regulation and the Law Economics 235 Economics of Finance Economics 330 Quantitative Methods for Decision Makers Economics 360/Sociology 360 Corporate and White Collar Crime Law 203 Constitutional Law | 6 |
| <i>Capstone:</i> | |
| ACC 410 Seminar in Forensic Financial Analysis | 3 |
| Subtotal | 27 |
| Electives | 12 |
| TOTAL CREDITS AT JOHN JAY COLLEGE OF CRIMINAL JUSTICE | |
| | 60 |
| Total Degree credits - Bachelor of Science in Economics: Forensic Financial Analysis | |
| | 120 |

DEPARTMENT of MECHANICAL ENGINEERING TECHNOLOGY and DESIGN DRAFTING

A.A.S. IN TECHNOLOGY (QCC) LEADING TO THE B.S. IN EDUCATION: CAREER AND TECHNICAL TEACHER (NEW YORK CITY COLLEGE OF TECHNOLOGY)

PURPOSES AND GOALS

The purpose of the proposed dual degree program is to expand the career opportunities available to graduates of AAS degree programs at Queensborough Community College. An objective of the program is to create pathways for students to complete the A.A.S. degree in a technology track (e.g., computer technology, electronic technology, etc.) at QCC and the baccalaureate degree in Career and Technical Education (CTE) at NYCCT. Graduates will have the option to pursue industry careers in technology careers or careers in teaching specific CTE subjects in the public schools. Another objective of the program is to help CTE programs meet the growing need for certified technical teachers in the public schools of New York State.

NEED AND JUSTIFICATION

For recent associate's degree graduates, teaching offers a career option that many never thought existed. This is especially true if a graduate cannot obtain immediate employment in industry, or wishes to change careers, or is displaced due to a downturn in the economy. These individuals can begin a career in CTE teaching in NYC with an associate degree, two years of work experience, and only 20 professional education credits and earn a beginning salary of about \$45,000 plus an excellent benefits package and generous holidays and work hours.

CURRICULUM

The program is constructed to fill a need for Career and Technical Teachers in the New York public schools. It includes a 31 credit liberal arts and sciences core and six optional tracks in technology: Computer Technology, Electronic Technology, Mechanical Technology, Computerized Architectural and Industrial Design Technology, Laser and Fiber Optics Technology, and Telecommunications Technology. Each optional track includes most of the requirements of an existing A.A.S. degree program at Queensborough, so no new courses are required.

An outline of curricular requirements for the proposed A.A.S. in Technology follows; all of the courses are already active courses at Queensborough:

| Proposed Requirements for the QCC/NYCCT DUAL/JOINT DEGREE PROGRAM: A.A.S. IN TECHNOLOGY (QCC) LEADING TO THE B.S. IN EDUCATION: CAREER AND TECHNICAL TEACHER (NEW YORK CITY COLLEGE OF TECHNOLOGY) | | Credits |
|---|---|----------------|
| General Education Core Requirements | | |
| EN-101, 102 | English Composition I, II | 6 |
| MA-114 | College Algebra and Trigonometry for Technical Students | 4 |
| MA-128 | Calculus for Technical and Business Students | 4 |
| PH-201, 202 | General Physics I, II | 8 |
| HI-127 or 128 | Growth of American Civilization I or II | 3 |
| SS- 310 | Sociology | 3 |
| SS- 510 | Psychology | 3 |
| General Education Sub-total | | 31 |
| Requirements for the Major (see requirements below for each track) | | |
| Requirements for the Major Sub-total | | 30 |
| Total Requirements for the A.A.S. degree | | 61 |

Note: Students must complete two Writing Intensive courses to graduate. Sections of the following courses are currently offered as Writing Intensive: SS- 310, 510; HI-127, 128.

| Requirements for the Major : Computer Technology Track | | |
|---|---|-----------|
| ET-110 | Electric Circuit Analysis I | 4 |
| ET-140 | Sinusoidal and Transient Circuit Analysis | 3 |
| ET-210 | Electronics I | 4 |
| ET-420 | Computer Project Laboratory | 1 |
| ET-501 | Computer Applications | 1 |
| ET-502 | Introduction to Computer Programming | 1 |
| ET-504 | Operating Systems and System Deployment | 2 |
| ET-509 | C++ Programming for Embedded Systems | 1 |
| ET-540 | Digital Computer Theory I | 4 |
| ET-560 | Microprocessors and Microcomputers | 4 |
| ET-704 | Networking Fundamentals I | 4 |
| ET-xxx | ET elective | 1 |
| Requirements for the Major Sub-total | | 30 |

| Requirements for the Major : Computerized Architectural and Industrial Design Technology Track | | |
|---|---|-----------|
| MT-111 | Technical Graphics | 2 |
| MT-124 | Metallurgy and Materials | 3 |
| MT-125 | Metallurgy and Materials Lab | 1 |
| MT-219 or MT-122 | Surveying and Layout or Manufacturing Processes | 3 |
| MT-212 | Technical Descriptive Geometry | 3 |
| MT-341 | Applied Mechanics | 3 |
| MT-488 | Computer Aided Design Drafting | 3 |
| MT-345 | Strength of Materials | 3 |
| MT-481 | Architectural Design Fundamentals | 3 |
| MT-489 | Advanced Computer Aided Design Drafting | 3 |
| MT-484 | Construction Methods | 3 |
| Requirements for the Major Sub-total | | 30 |

| Requirements for the Major : Electronic Technology Track | | |
|---|---|-----------|
| ET-110 | Electric Circuit Analysis I | 4 |
| ET-140 | Sinusoidal and Transient Circuit Analysis | 3 |
| ET-210 | Electronics I | 4 |
| ET-220 | Electronics II | 4 |
| ET-320 | Electrical Control Systems | 3 |
| ET-410 | Electronic Project Laboratory | 1 |
| ET-501 | Computer Applications | 1 |
| ET-509 | C++ Programming for Embedded Systems | 1 |
| ET-510 | Digital Computers | 4 |
| ET-560 | Microprocessors and Microcomputers | 4 |
| ET-xxx | ET electives | 1 |
| Requirements for the Major Sub-total | | 30 |

| Requirements for the Major : Laser and Fiber Optics Technology Track | | |
|---|---|-----------|
| PH-231 | Fundamentals of Lasers and Fiber Optics | 4 |
| PH-232 | Laser and Electro-Optics Technology | 5 |
| PH-233 | Laser/Electro-Optics Devices, Measurements and Applications | 4 |
| PH-234 | Fiber Optics Devices, Measurements and Applications | 4 |
| PH-236 | Introduction to Computers in Electro-Optics | 2 |
| ET-910 | Principles of Electrical Technology | 3 |
| ET-210 | Electronics I | 4 |
| ET-220 | Electronics II | 4 |
| Requirements for the Major Sub-total | | 30 |

| Requirements for the Major : Mechanical Technology Track | | |
|---|---|-----------|
| MT-111 | Technical Graphics | 2 |
| MT-122 | Manufacturing Processes | 3 |
| MT-124 | Metallurgy and Materials | 3 |
| MT-125 | Metallurgy and Materials lab | 1 |
| MT-161 | Fundamentals of Computer Numerical Control | 3 |
| MT-341 | Applied Mechanics | 3 |
| MT-293 | Parametric Computer Aided Design Drafting | 3 |
| MT-345 | Strength of Materials | 3 |
| MT-346 | Strength of Materials Laboratory | 1 |
| MT-369 | Computer Applications in Engineering Technology | 3 |
| MT-900 | Cooperative Education | 3 |
| MT-491 | Computer Controlled Manufacturing | 2 |
| Requirements for the Major Sub-total | | 30 |

| Requirements for the Major : Telecommunications Technology Track | | |
|---|---|-----------|
| ET-110 | Electric Circuit Analysis I | 4 |
| ET-140 | Sinusoidal and Transient Circuit Analysis | 3 |
| ET-210 | Electronics I | 4 |
| ET-230 | Telecommunications I | 4 |
| ET-231 | Telecommunications II | 4 |
| ET-501 | Computer Applications | 1 |
| ET-502 | Introduction to Computer Programming | 1 |
| ET-540 | Digital Computer Theory I | 4 |
| ET-704 | Networking Fundamentals I | 4 |
| ET-xxx | ET Elective | 1 |
| Requirements for the Major Sub-total | | 30 |

**QCC/NYCCT DUAL/JOINT DEGREE PROGRAM: A.A.S. IN TECHNOLOGY (QCC) AND
B.S. IN EDUCATION: CAREER AND TECHNICAL TEACHER (NEW YORK CITY COLLEGE
OF TECHNOLOGY)**

Program Requirements for the A.A.S. in Technology

| Queensborough Community College courses | | Cr | New York City College of Technology equivalents (all courses meet NYCCT General Education requirements) | | NYCCT Cr. |
|---|---|-----------|---|---|-----------|
| General Education Core Requirements | | | | | |
| EN-101, 102 | English Composition I, II | 6 | ENG 1101, 1121 | English Composition I, II | 6 |
| MA-114 | College Algebra and Trigonometry for Technical Students | 4 | MAT 1375 | Precalculus | 4 |
| MA-128 | Calculus for Technical and Business Students | 4 | MAT 1475 | Calculus I | 4 |
| PH-201, 202 | General Physics I, II | 8 | PHYS 1433, 1434 | Physics 1.2, Physics 2.2 | 8 |
| HI-127 or 128 | Growth of American Civilization I or II | 3 | HIS 1110 or HIS 1111 | History of U.S. to 1877 or History of U.S. since 1865 | 3 |
| SS- 310 | Sociology | 3 | SOC 1101 | Introduction to Sociology | 3 |
| SS- 510 | Psychology | 3 | PSY 1101 | Introduction to Psychology | 3 |
| General Education Sub-total | | 31 | | | 31 |
| Requirements for the Major | | | | | |
| (see tracks) | | | Blanket 30 credits for each track | | |
| | | | | | |
| | | | | | |
| Requirements for the Major Sub-total | | 30 | | | 30 |
| Total Requirements for the degree | | 61 | | | 61 |

Note:

All QCC degree students must take two Writing Intensive courses (in addition to EN-101, 102).

Requirements for Graduation with the A.A.S. in Technology

The following general Queensborough graduation requirements apply for the students in the proposed program:

- Students must complete all the credit and course requirements for a particular Associate degree.
- To graduate with the A.A.S. in Technology, students must attain a minimum cumulative Grade-Point Average (GPA) of 2.0 in all courses applicable toward a current degree. To continue into the junior year of the B.S. program in Education: Career and Technical Teacher at NYCCT, students must have a minimum GPA of 2.5.
- If students were placed in remedial courses they must pass the CUNY exit from Remediation exams.
- Students in Associate degree programs must pass the CUNY Proficiency Examination (CPE).
- Students must complete a minimum residency degree requirement of 30 credits for the Associate degree.
- Students are required to complete two (2) credit-bearing Writing Intensive (WI) classes in order to receive the Associate degree.

Admission to the junior year in the B.S. in Education: Career and Technical Teacher program at New York City College of Technology

Under the two plus two arrangement, students who complete the A.A.S. degree program in Technology with a minimum GPA of 2.5 and meet all the requirements will move seamlessly into the B.S. program in Education: Career and Technical Teacher. The total number of credits for the Baccalaureate Degree in Education: Career and Technical Teacher at New York City College of Technology is 123. To graduate with the B.S. at NYCCT, students must attain a minimum GPA of 2.75. The following courses will be required beyond the A.A.S. in Technology, and will be taken at New York City College of Technology:

Courses to be taken at New York City College of Technology

| SUMMER before entry to NYCCT | | | |
|--|--|----------------------------|--|
| COURSE TITLE | | Credits | |
| EDU 2510 Orientation to Career and Technical Education | | 3 | |
| JUNIOR YEAR: FALL | | JUNIOR YEAR: SPRING | |
| COURSE TITLE | | Credits | |
| EDU 2455 Methods and Materials for Special Needs Students | | 3 | |
| SPE 1330 Effective Speaking | | 3 | |
| EDU 2610/PSY 2501 Child and Adolescent Development | | 3 | |
| EDU 2520 Occupational Analysis & Curriculum Organization | | 3 | |
| EDU 2362 Methods of Teaching I | | 3 | |
| Total Credits | | 15 | |
| JUNIOR YEAR: FALL | | JUNIOR YEAR: SPRING | |
| COURSE TITLE | | Credits | |
| ARTH 1103 Survey of Art History | | 3 | |
| EDU 2353 Lab Organization and Management of Instruction | | 3 | |
| EDU 3680 Internship in Career and Technical Education | | 3 | |
| EDU 3630 Assessing Student Learning Outcomes | | 3 | |
| EDU 4620 Methods of Teaching Career-Technical Education II | | 3 | |
| Total Credits | | 15 | |
| Total Credits Summer, Fall and Spring terms | | 33 | |

| SENIOR YEAR: FALL | | SENIOR YEAR: SPRING | |
|--|--|----------------------------|--|
| COURSE TITLE | | Credits | |
| EDU 3610 Human Learning and Instruction | | 3 | |
| SOC 2401 Society, Technology, & Self | | 3 | |
| ENG 2000 Perspectives in Literature | | 3 | |
| PHIL 2106 Philosophy of Technology | | 3 | |
| 3 | | 3 | |
| EDU 3640 Computers in Education | | 3 | |
| Total Credits | | 15 | |
| SENIOR YEAR: FALL | | SENIOR YEAR: SPRING | |
| COURSE TITLE | | Credits | |
| MUS Elective | | 3 | |
| LAP Elective | | 3 | |
| EDU 4600 Professional Development Seminar | | 2 | |
| EDU 4870 Supervised/Student Teaching II | | 6 | |
| Total Credits | | 14 | |
| Total Credits Fall and Spring terms of Senior Year | | 29 | |
| TOTAL CREDITS TAKEN AT NEW YORK CITY COLLEGE OF TECHNOLOGY | | 62 | |
| TOTAL CREDITS FOR THE B.S. IN EDUCATION: CAREER AND TECHNICAL TEACHER | | 123 | |

SED II

A.A.S. in Technology (Computer Technology Track)--Suggested sequence of courses

| FALL | | SPRING | | FALL | | SPRING | |
|--|----------------|---|----------------|--|----------------|---|----------------|
| COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits |
| MA-114 College Algebra and Trigonometry for Technical Students | 4 | MA-128 Calculus for Technical and Business Students | 4 | PH-201 General Physics I | 4 | PH-202 General Physics II | 4 |
| EN-101 English Composition I | 3 | SS-310 Sociology | 3 | SS-510 Psychology | 3 | HI-127 or 128 Growth of American Civilization I or II | 3 |
| ET-110 Electric Circuit Analysis I | 4 | ET-140 Sinusoidal and Transient Circuit Analysis | 3 | ET-504 Operating Systems and System Deployment | 2 | EN-102 English Composition II | 3 |
| ET-501 Computer Applications | 1 | ET-210 Electronics I | 4 | ET-509 C++ Programming for Embedded Systems | 1 | ET-704 Networking Fundamentals I | 4 |
| ET-540 Digital Computer Theory I | 4 | ET-502 Introduction to Computer Programming | 1 | ET-560 Microprocessors and Microcomputers | 4 | ET-420 Computer Project Laboratory | 1 |
| | | | | ET-xxx Elective | 1 | | |
| Total Credits | 16 | Total Credits | 15 | Total Credits | 15 | Total Credits | 15 |

SED BII**A.A.S. in Technology (Computerized Architectural & Industrial Design Technology Track) -- Suggested sequence of courses**

| FALL | | SPRING | | FALL | | SPRING | |
|---|-----------|---|-----------|---|-----------|---|-----------|
| COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits |
| MA-114 College Algebra and Trigonometry for Technical Students | 4 | MA-128 Calculus for Technical and Business Students | 4 | PH-201 General Physics I | 4 | PH-202 General Physics II | 4 |
| EN-101 English Composition I | 3 | EN-102 English Composition II | 3 | SS-510 Psychology | 3 | HI-127 or 128 Growth of American Civilization I or II | 3 |
| MT-111 Technical Graphics | 2 | SS-310 Sociology | 3 | MT-345 Strength of Materials | 3 | MT-484 Construction Methods | 3 |
| MT-122 Manufacturing Processes <i>or</i> MT-219 Surveying and Layouts | 3 | MT-212 Technical Descriptive Geometry | 3 | MT-481 Architectural Design Fundamentals | 3 | MT-489 Advanced CADD | 3 |
| MT-124 Metallurgy and Materials | 3 | MT-341 Applied Mechanics | 3 | MT-488 Computer –Aided Design Drafting (CADD) | 3 | | |
| MT-125 Metallurgy and Materials Laboratory | 1 | | | | | | |
| | | | | | | | |
| Total Credits | 16 | Total Credits | 16 | Total Credits | 16 | Total Credits | 13 |

SED BII**A.A.S. in Technology (Electronic Technology Track) --Suggested sequence of courses**

| FALL | | SPRING | | FALL | | SPRING | |
|--|----------------|---|----------------|---|----------------|---|----------------|
| COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits |
| MA-114 College Algebra and Trigonometry for Technical Students | 4 | MA-128 Calculus for Technical and Business Students | 4 | PH-201 General Physics I | 4 | PH-202 General Physics II | 4 |
| EN-101 English Composition I | 3 | SS-310 Sociology | 3 | SS-510 Psychology | 3 | HI-127 or 128 Growth of American Civilization I or II | 3 |
| ET-110 Electric Circuit Analysis I | 4 | ET-140 Sinusoidal and Transient Circuit Analysis | 3 | ET-220 Electronics II | 4 | EN-102 English Composition II | 3 |
| ET-501 Computer Applications | 1 | ET-210 Electronics I | 4 | ET-560 Microprocessors and Microcomputers | 4 | ET-320 Electrical Control Systems | 3 |
| ET-510 Digital Computers | 4 | ET-509 C++ Programming for Embedded Systems | 1 | | | ET-410 Electronic Project Laboratory | 1 |
| | | | | | | ET-xxx Elective | 1 |
| Total Credits | 16 | Total Credits | 15 | Total Credits | 15 | Total Credits | 15 |

SED BII**A.A.S. in Technology (Laser and Fiber Optics Technology Track) --Suggested sequence of courses**

| FALL | | SPRING | | FALL | | SPRING | |
|--|-----------|---|-----------|--|-----------|--|-----------|
| COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits |
| MA-114 College Algebra and Trigonometry for Technical Students | 4 | MA-128 Calculus for Technical and Business Students | 4 | PH-202 General Physics II | 4 | SS-510 Psychology | 3 |
| EN-101 English Composition I | 3 | PH-201 General Physics I | 4 | EN-102 English Composition II | 3 | HI-127 or 128 Growth of American Civilization I or II | 3 |
| SS-310 Sociology | 3 | PH-232 Laser and Electro-Optics Technology | 5 | PH-233 Laser/Electro-Optics Devices, Measurements and Applications | 4 | PH-234 Fiber Optics Devices, Measurements and Applications | 4 |
| PH-231 Fundamentals of Lasers and Fiber Optics | 4 | ET-910 Principles of Electrical Technology | 3 | ET-210 Electronics I | 4 | PH-236 Introduction to Computers in Electro-Optics | 2 |
| | | | | | | ET-220 Electronics II | 4 |
| | | | | | | | |
| Total Credits | 14 | Total Credits | 16 | Total Credits | 15 | Total Credits | 16 |

A.A.S. in Technology (Mechanical Engineering Technology Track) --Suggested sequence of courses

| FALL | | SPRING | | FALL | | SPRING | |
|--|-----------|---|-----------|--|-----------|---|-----------|
| COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits |
| MA-114 College Algebra and Trigonometry for Technical Students | 4 | MA-128 Calculus for Technical and Business Students | 4 | PH-201 General Physics I | 4 | PH-202 General Physics II | 4 |
| EN-101 English Composition I | 3 | EN-102 English Composition II | 3 | SS-510 Psychology | 3 | HI-127 or 128 Growth of American Civilization I or II | 3 |
| MT-111 Technical Graphics | 2 | SS-310 Sociology | 3 | MT-345 Strength of Materials | 3 | MT-369 Computer Applications in Engineering Science | 3 |
| MT-122 Manufacturing Processes | 3 | MT-161 Fundamentals of Computer Numerical Control | 3 | MT-346 Strength of Materials Laboratory | 1 | MT-900 Cooperative Education/Design Projects | 3 |
| MT-124 Metallurgy and Materials | 3 | MT-341 Applied Mechanics | 3 | MT-293 Parametric Computer – Aided Design Drafting | 3 | MT-491 Computer Controlled Manufacturing | 2 |
| MT-125 Metallurgy and Materials Laboratory | 1 | | | | | | |
| | | | | | | | |
| Total Credits | 16 | Total Credits | 16 | Total Credits | 14 | Total Credits | 15 |

SED BII**A.A.S. in Technology (Telecommunications Technology Track) --Suggested sequence of courses**

| FALL | | SPRING | | FALL | | SPRING | |
|--|----------------|---|----------------|----------------------------------|----------------|---|----------------|
| COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits | COURSE TITLE | Credits |
| MA-114 College Algebra and Trigonometry for Technical Students | 4 | MA-128 Calculus for Technical and Business Students | 4 | PH-201 General Physics I | 4 | PH-202 General Physics II | 4 |
| EN-101 English Composition I | 3 | SS-310 Sociology | 3 | SS-510 Psychology | 3 | HI-127 or 128 Growth of American Civilization I or II | 3 |
| ET-110 Electric Circuit Analysis I | 4 | ET-140 Sinusoidal and Transient Circuit Analysis | 3 | ET-704 Networking Fundamentals I | 4 | EN-102 English Composition II | 3 |
| ET-501 Computer Applications | 1 | ET-210 Electronics I | 4 | ET-230 Telecommunications I | 4 | ET-231 Telecommunications II | 4 |
| ET-540 Digital Computer Theory I | 4 | ET-502 Introduction to Computer Programming | 1 | | | ET-xxx Elective | 1 |
| | | | | | | | |
| Total Credits | 16 | Total Credits | 15 | Total Credits | 15 | Total Credits | 15 |