New York City College of Technology, CUNY

CURRICULUM MODIFICATION PROPOSAL FORM

This form is used for all curriculum modification proposals. See the [Proposal Classification Chart](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-09-Proposal_Classification_Chart.pdf) for information about what types of modifications are major or minor. Completed proposals should be emailed to the Curriculum Committee chair.

|  |  |
| --- | --- |
| **Title of Proposal** | Changes in the Associate of Science in Chemical Technology Degree |
| **Date** | 10/10/2017 |
| **Major or Minor** | Minor |
| **Proposer’s Name** | Diana Samaroo |
| **Department** | Chemistry |
| **Date of Departmental Meeting in which proposal was approved** | October 5, 2017 |
| **Department Chair Name** | Diana Samaroo |
| **Department Chair Signature and Date** | 10/10/2017 |
| **Academic Dean Name** | Justin Vazquez-Poritz |
| **Academic Dean Signature and Date** | 10/27/17 |
| **Brief Description of Proposal**(Describe the modifications contained within this proposal in a succinct summary. More detailed content will be provided in the proposal body. | This proposal brings the Associate of Science in Chemical Technology in compliance with CUNY Pathways. It allows the inclusion of MAT 1275 and MAT 1375 into the degree-credit structure as part of General Education. These two courses (which are based on initial math placement) are pre-requisites for required courses but have not been counted in the degree credit structure. The proposal also shifts CHEM 1110 and CHEM 1210 credits from the Life and Physical Sciences and Scientific World categories, respectively and MAT 1475 from Mathematical and Quantitative Reasoning to the program-specific degree requirements. The chemistry courses become program-specific degree requirements, although CHEM 1110 and CHEM 1210 are recommended as “double duty” courses to fulfill certain General Education categories. These changes also brings the Associate Degree in Chemical Technology in compliance with CUNY’s 60/120 policy. The Chemical Technology degree was approved as 61 credits. |
| **Brief Rationale for Proposal**(Provide a concise summary of why this proposed change is important to the department. More detailed content will be provided in the proposal body).  | The proposed changes intend to bring the program in compliance with CUNY mandate because of the existence of “hidden prerequisites.” The changes allow students to take MAT 1275 and MAT 1375 courses as part of General Education, while also removing limitations on Pathways’ requirements for MAT 1475 and two chemistry courses. |
| **Proposal History**(Please provide history of this proposal: is this a resubmission? An updated version? This may most easily be expressed as a list). | This is a new proposal |

Please include all appropriate documentation as indicated in the Curriculum Modification Checklist.

For each new course, please also complete the New Course Proposal and submit in this document.

Please submit this document as a single .doc or .rtf format. If some documents are unable to be converted to .doc, then please provide all documents archived into a single .zip file.

**ALL PROPOSAL CHECK LIST**

|  |  |
| --- | --- |
| Completed CURRICULUM MODIFICATION FORM including: |  |
| * Brief description of proposal
 | x |
| * Rationale for proposal
 | x |
| * Date of department meeting approving the modification
 | x |
| * Chair’s Signature
 | x |
| * Dean’s Signature
 | x |
| Evidence of consultation with affected departmentsList of the programs that use this course as required or elective, and courses that use this as a prerequisite. | XN/A |
| Documentation of Advisory Commission views (if applicable). | N/A |
| Completed [Chancellor’s Report Form](http://openlab.citytech.cuny.edu/collegecouncil/files/2014/08/2013-10-09-Chancellor_Report_Quick_Reference_Guide1.doc). | x |

**EXISTING PROGRAM MODIFICATION PROPOSALS**

|  |  |
| --- | --- |
| Documentation indicating core curriculum requirements have been met for new programs/options or program changes.  | N/A |
| Detailed rationale for each modification (this includes minor modifications) |  x |

**DESCRIPTION OF THE PROPOSAL**

Until 2011, the Department of Chemistry offered an Applied Associate in Science degree in Chemical Technology which at that point was changed to an Associate of Science degree.

The recent CUNY mandate from Executive Vice Chancellor Vita Rabinowitz point to the 60/120 policy and “hidden pre-requisites.” This proposal brings the Chemical Technology degree (which was approved as 61 credits) in compliance with the CUNY Pathways mandate that there be no “hidden prerequisites.” It therefore allows students to take MAT 1275 and MAT 1375 as part of the degree-credit structure as part of General Education. It should be noted that student’s may enter at 1275, 1375 or higher. These courses are prerequisites for program-specific courses and typically would make students graduate with more than 61 credits from the AS in Chemical Technology.

In order to remove limitations on the courses that can be taken to satisfy Pathways’ categories, this proposal also shifts MAT 1475 (4 credits), CHEM 1110 (4 credits) and CHEM 1210 (4 credits) from Pathways’ requirements to program-specific degree requirements. As a result, inclusion of the three courses listed above displaces the following required courses: two math/science elective credits, and PHYS 1442 – Calculus-based Physics II.

Students testing out from MAT 1275 and MAT 1375, and therefore, placed in MAT 1475 will be advised to use MAT 1475, CHEM 1110 and CHEM 1210 as “double duty” courses to fulfill Pathways’ requirements of Mathematical and Quantitative Reasoning, Life and Physical Sciences and Scientific World, respectively. By doing so, math/science elective credits will become available to students to take other upper level math and sciences elective courses. The proposal allows recommends including CHEM 3622 – Inorganic Chemistry as one of the science electives. The table(s) in Section AIII below presents the changes to this degree program.

These changes will maintain the 2 + 2 structure of the Bachelor of Science in Applied Chemistry, if those changes are also approved by the companion proposal.

**RATIONALE OF THE PROPOSAL**

This proposal allows students to graduate from the AS in Chemical Technology with 60 credits by eliminating “hidden prerequisites,” and removes CHEM 1110, CHEM 1210 and MAT 1475 courses from Pathways’ requirements. These changes intend to bring the AS in Chemical Technology in compliance with CUNY policy, by allowing students to use MAT 1275 and MAT 1375, if needed, within the degree-credit structure of General Education.

# Section AIII: Changes in Degree Programs

**The following revisions are proposed for Chemistry Department**

**Program: Associate in Science in Chemical Technology**

**Program Code:**

**Effective Date: Fall 2018**

|  |  |
| --- | --- |
| **FROM:** | **TO:** |
| **General Education Common Core1: ~~33 credits~~**1. **Required Core (4 courses, ~~14 credits~~)**

**English Composition (2 courses, 6 credits)**ENG 1101 English Composition I 3 ENG 1121 English Composition II 3**Mathematical and Quantitative Reasoning (1 course, 4 credits)** ~~MAT 1475 Calculus I or higher~~~~2~~ ~~4~~**Life/ Physical Science (1 course, ~~4 credits~~)** ~~CHEM 1110 General Chemistry I 4~~1. **Flexible Core (6 courses, ~~19 credits~~)**

In addition to the required course listed below, select one course from each of the following areas, plus one additional course from any of the five areas; no more than two courses may be selected from any discipline.  **World Cultures and Global Issues** 3 **US Experience in its Diversity** 3**Creative Expression** 3**Individual and Society** 3**Scientific World** **~~CHEM 1210/L General Chemistry II~~**  ~~4~~**One additional course from any Flexible Core area** 3 **Writing Intensive Requirement3**Students at New York City College of Technology must complete twocourses designated WI for the associate level, one from GenEd andone from the major; and two additional courses designated WI for thebaccalaureate level, one from GenEd and one from the major.**III. Program-Specific Degree Requirements (~~28 Credits~~):** **REQUIRED** ~~CHEM 1110 General Chemistry I Met as Gen Ed~~~~CHEM 1210 General Chemistry II Met as Gen Ed~~CHEM 2223 Organic Chemistry I 5CHEM 2323 Organic Chemistry II 5PHYS 1441 General Physics I Calculus Based 5~~PHYS 1442 General Physics II Calculus Based 5~~**SCIENCE/MATHEMATICS ELECTIVES****~~Select 8 or more credits from the following:~~**BIO 1101 Biology I 4BIO 1201 Biology II 4BIO 2311 Human Anatomy and Physiology I 4BIO 2312 Human Anatomy and Physiology II 4BIO 3302 Microbiology 4BIO 3350 Elements of Bioinformatics 4BIO 3601 Biochemistry 4CHEM 3312 Analytical Chemistry 5CHEM 3412 Instrumental Methods of Analysis 5MAT 1575 Calculus II 4MAT 2675 Calculus III 4PHYS 1117 Astronomy I 4PHYS 1118 Astronomy II: Stars, Galaxies, Cosmology 4PHYS 2443 Physics 3.3 4PHYS 2605 Laser Physics and Photonics 4MAT 1476L Calculus Laboratory 1CHEM 2411 Special Topics in Chemistry 3IS 9010 Independent Study 1-3**Total Program-Specific Required and Elective ~~Courses~~: ~~28~~****Total NYSED Liberal Arts and Science Credits: ~~33~~****Total Credits Required for the Degree: ~~61~~**~~1 For purposes of advisement, specific courses listed are “double-duty” courses: degree requirements that also meet CUNY Pathways general education requirements in that category. Students are not required to take these courses to meet their GenEd requirements; however, making a different choice may result in additional credits needed to complete the degree.~~~~2 Students without the requisite math background to enter MAT 1475 will be required to take MAT 1175, MAT 1275, and/or MAT 1375 in preparation. This will increase the number of required credits for the degree by 4-12 credits.~~~~3 A semester-specific list of writing intensive courses is available online at the CityTech Pathways website~~  | **General Education Common Core: 30-34 credits**1. **Required Core1 (4 courses, 12-14 credits)**

**English Composition (2 courses, 6 credits)**ENG 1101 English Composition I 3 ENG 1121 English Composition II 3**Mathematical and Quantitative Reasoning (1 course, 4 credits)** STEM math strongly recommended2 4**Life/ Physical Science (1 course, 3-4 credits)** CHEM 1110/L General Chemistry I (recommended) 3-41. **Flexible Core (6 courses, 18-20 credits)**

In addition to the required course listed below, select one course from each of the following areas, plus one additional course from any of the five areas; no more than two courses may be selected from any discipline. **World Cultures and Global Issues** 3 **US Experience in its Diversity** 3**Creative Expression** 3**Individual and Society** 3**Scientific World** STEM math strongly recommended2 4**One additional course from any Flexible Core area** CHEM 1210/L General Chemistry I (recommended) 3-4 **Writing Intensive Requirement**.Students at New York City College of Technology must complete twocourses designated WI for the associate level, one from GenEd andone from the major; and two additional courses designated WI for thebaccalaureate level, one from GenEd and one from the major.**III. Program-Specific Degree Requirements (26-30 Credits):** **REQUIRED** MAT 1475 Calculus I 4CHEM 1110 General Chemistry I 4CHEM 1210 General Chemistry II 4CHEM 2223 Organic Chemistry I 5CHEM 2323 Organic Chemistry II 5PHYS 1441 General Physics I Calculus Based 5**SCIENCE/MATHEMATICS ELECTIVES**3 Choose courses from the following list to bring total number of credits to 60. The choice of electives, to be made in close consultation with the Academic Advisor, should ideally reflect the student’s interests and career goals.**Science and Mathematics Elective Courses3**BIO 1101 Biology I 4BIO 1201 Biology II 4BIO 2311 Human Anatomy and Physiology I 4BIO 2312 Human Anatomy and Physiology II 4BIO 3302 Microbiology 4BIO 3350 Elements of Bioinformatics 4BIO 3601 Biochemistry 4CHEM 3312 Analytical Chemistry 5CHEM 3412 Instrumental Methods of Analysis 5**CHEM 3622 Inorganic Chemistry 4**MAT 1575 Calculus II 4MAT 2675 Calculus III 4PHYS 1117 Astronomy I 4PHYS 1118 Astronomy II: Stars, Galaxies, Cosmology 4**PHYS 14424 Calculus-based Physics 2 5**PHYS 2443 Physics 3.3 4PHYS 2605 Laser Physics and Photonics 4MAT 1476L Calculus Laboratory 1CHEM 2411 Special Topics in Chemistry 3IS 9010 Independent Study 1-3**Total Program-Specific Required and Elective Credits: 26-30****Total NYSED Liberal Arts and Science Credits: 30-34****Total Credits Required for the Degree: 60**1 Chemical Technology is a STEM degree program, requiring 4 or 5 credit courses in mathematics and sciences. For purposes of advisement, specific courses recommended are “double-duty” courses: degree requirements that also meet CUNY Pathways general education requirements in that category. Students are not required to take these courses to meet their GenEd requirements; however, those who elect to use their required 4- or 5-credit math or science courses to meet general education requirements in Mathematical and Quantitative Reasoning, Life and Physical Sciences, and/or Scientific World will have up to 12 additional credits of science and math electives available.2 The STEM math series is MAT 1275, MAT 1375, MAT 1475, MAT 1575, and MAT 2675, with each course a prerequisite for the next. Most courses in the sequence are included in the Math and Quantitative Reasoning and Scientific World categories. If initial placement determines that a student does not have the requisite math background to enter MAT 1475, they are required to take MAT 1275, and/or MAT 1375 in preparation. Students who, due to their initial placement, are required to begin their mathematics studies in a course before MAT 1475, must select MAT 1275 and/or MAT 1375 as their Mathematics and Quantitative Reasoning and Scientific World courses. 3 The number of science/math elective credits will vary depending upon the program-specific courses students use to meet Common Core requirements.4 PHYS 1442 is strongly recommended and satisfies a degree requirement for the BS in Applied Chemistry. |

Rationale: The proposed changes intend to bring the program in compliance with CUNY mandate because of the existence of “hidden prerequisites.” The changes allow students to take MAT 1275 and MAT 1375 courses as part of General Education, while also removing limitations on Pathways’ requirements for MAT 1475 and two chemistry courses.

**Evidence of department approval of the modification.**

Department of Chemistry

Faculty Meeting Minutes

October 5, 2017

1:03-2:25 pm in P611

In attendance: D. Samaroo (Chair), L. J. Deiner, S. Tewani, T. Nicolas, A. Martinez, P. Spellane, I. Jovanovic, L. Johnson, I. Perez

Guest: Dean Justin Vazquez-Poritz

Prof. Samaroo called the meeting to order at 1:03 pm and discussion centered on the following:

1. Spring 2018 courses.

Prof. Samaroo shared information about courses offered in the Spring 2018 semester. All classes will be scheduled in the New Academic Building except for Analytical Chemistry that will run in P611 for one additional semester.

1. Fall 2017 advisement of Applied Chemistry and Chemical Technology students.

Prof. Samaroo asked full-time faculty to submit 1.5 - 2 hours/week availability for student advisement.

1. Prof. Samaroo notified the department members that the Chemistry Department has been offered to host a new BS program in “Environmental Health and Occupational Safety”.

The program does not offer any laboratory section and there will be no conflicts with any Chemistry course.

Proposal for the new program is intended to be submitted in January 2018 and new program implemented in Spring 2019.

The new program will require 2 new faculty members and a Program Director. Some faculty members voiced concern regarding staffing and office space, as there will be none once we move to the Academic Building.

1. A curriculum modification of the Associate in Science in Chemical Technology was presented by Chair Diana Samaroo and Dean Justin Vazquez-Poritz.

Dean Vazquez-Poritz provided the rationale for the proposed curriculum change based on recent CUNY policy. As per that policy, students must have the chance to graduate from the AS with a total of 60 credits, including all degree-specific course prerequisites as credit-bearing courses. Also, General Education credits must remain unstrained.

The proposal shifts MAT1475, CHEM1110 and CHEM1210 from Pathways’ requirements to program-specific courses replacing Two science/Math electives and PHYS1442. However, the proposal also recommends students to use Math and Quantitative Reasoning, Additional Flexible Core, Life and Physical Sciences, and Scientific World Pathways’ categories to fulfill credits of MAT1275, MAT1375, CHEM1110 and CHEM1210, respectively. PHYS1442 is no longer required to graduate from the AS in Chemical Technology, but instead offered as an elective.

Discussions centered on students currently in the AS degree – many use the AS as preparation for pre-med/dental or pre-pharmacy for post-baccalaureate students; transfer to City College Biomedical and Chemical Engineering programs.

The changes were discussed by the department members and a vote was taken with the following results:

 In favor of proposal Against proposal Abstained

AS in Chemical Technology 4 2 0

Consequently, the curriculum modification of the AS in Chemical Technology was passed by the Chemistry Department as proposed. PHYS 1442 will be offered as an elective in the AS degree.

1. Laboratory distribution of New Academic Building

Laboratory space in the New Academic Building was discussed by department members and Dean Vazquez-Poritz. There will be two designated areas for research to share between all members of the department (rooms 507 and 508). The rest of laboratory space is considered instructional or chemistry support areas.

Prof. Samaroo also announced that one extra laboratory space will be shared in the 3rd floor with the Biology Department.

1. Updates on Project Wayfinding.

Project Wayfinding was presented by Prof. Martinez. New academic planners were shared with all full-time faculty of the Chemistry Department for feedback.

Modifications as a result of the pending curriculum changes will be implemented in the final version of the planners.

Meeting was called to an end at 2:25 pm.

 Minutes submitted by Alberto Martinez

**Department of Chemistry**

**Faculty Meeting Minutes**

May 11, 2017

1:05-2:00 pm in P618

In attendance: D. Samaroo, L. J. Deiner, S. Tewani, T. Nicolas, A. Martinez

Excused: P. Spellane (on fellowship leave)

Prof. Samaroo called the meeting to order at 1:05 pm and discussion centered on the following:

1. Fall 2017 courses

Current registration for fall courses was discussed and stood as follows:

Instrumental Methods of Analysis: 8 students

Inorganic Chemistry: 8 students

Instrumental Chromatography: 3 students

Advanced Spectroscopy: 2 students

1. Curriculum modification of Associate in Science and Bachelor in Applied Chemistry

In an interpretation of CUNY memo (Exec. Vice Chancellor Vita Rabinowitz), pre-requisites for chemistry courses must count as credits for students’ degrees. Also, CHEM1110, CHEM1210 and MAT1475 must be included as degree specific courses in both the AS in Chemical Technology and the BS in Applied Chemistry. These changes were vastly discussed by members of the Chemistry Department and proposals for each program with curriculum modifications were presented in order to comply with CUNY policy. A vote on the proposals was taken with the following results:

 In favor of proposal Against proposal Abstained

AS in Chemical Technology 1 3 1

BS in Applied Chemistry 3 2 0

As a consequence, the curriculum modification of the BS in Applied Chemistry as proposed was passed by the Chemistry Department. Curriculum modification of the AS in Chemical Technology was rejected by the Chemistry Department based on a major impact on learning outcomes in the resulting program.

Inorganic Chemistry (CHEM3622) was added as an elective course of the AS in Chemical Technology.

1. Department self-study

A department self-study for the AS in Chemical Technology must be conducted by 2019. An outline of the content of such self-study was provided by Prof. Samaroo for members of the department to start working on different parts of it.

1. Prof. Samaroo reminded faculty members to submit all classroom observation reports.
2. Updates

Prof. Samaroo provided updates on:

* Hiring process of senior CLT and full time faculty. At this time, a candidate for the CLT position has been proposed to City Tech administration and interviews for the full time line are being conducted at the department level.
* New Academic Building. Move is on schedule for the end of Fall semester. Prof. Samaroo reminded to the members of the Chemistry Department that quotes for re-installation/re-calibration of specific instrumentation should be requested to manufacturers.

Meeting was called to an end at 2:00 pm.

 Minutes submitted by Alberto Martinez

**Evidence of contact with affected departments.**

**From:** Diana Samaroo
**Sent:** Tuesday, October 24, 2017 9:58 AM
**To:** Roman Kezerashvili
**Subject:** PHYS 1442 -- Associate's degree in Chemical Technology

Dear Roman,

I hope all is well.   As you are aware of the CUNY Policy regarding hidden pre-requisites, the Chemistry Department will be submitting some curriculum changes to the Chemical Technology AS degree.   The program is restructuring, so that 12 credits (CHEM 1110, CHEM 1210, MAT 1475) are "moved" from General Education into the fold of required degree specific courses.  As such, PHYS 1442 - Calculus-based Physics (5 credits), will become an elective course in the Associate degree.

If you need further information/clarification, please let me know.

Best wishes,

Diana

Diana SAMAROO, PhD

Chair | Associate Professor | Department of Chemistry

CUNY - New York City College of Technology

300 Jay Street, Pearl 613, Brooklyn, NY 11201

email: dsamaroo@citytech.cuny.edu

main: 718.260.5850

[Bachelor of Science in Applied Chemistry](https://www.citytech.cuny.edu/academics/deptsites/chemistry/bs.aspx#_blank)