TO: Dr. Peter Wong, Dr. Lorena Ellis, Dr. Mel Gorelick, Prof. Karin Gapper, Dr. Tom Gerson, Dr. Kenneth Pearl, and Dean Karen Steele, ex-officio

FROM: David Lieberman, Chair  
x6324 Fax: 631.6608

DATE: October 22, 2001

RE: November 6, 2001 Meeting

The Committee will meet at 2:00 PM on Tuesday, November 6, 2001 in Oakland room 22.

Agenda
1. Consideration of Minutes of the September 4, 2001 meeting
2. Chair’s Report
3. Appointment of new member to the WID/WAC subcommittee
4. New course – CS-299 Algorithmic Problem Solving 2, see attachment 1
5. New course – PH-240 GRAPHICAL PROGRAMMING AND THE USE OF COMPUTERS FOR PHYSICAL MEASUREMENTS, see attachment 2
6. New business
To: Dr. David Lieberman, Chair, College Curriculum Committee  
From: Dr. Mona Fabricant, Chair, Dept. of Math & Computer Science  
Date: October 16, 2001  
Subject: Curriculum Committee Action

The Department of Mathematics & Computer Science is requesting that the Curriculum Committee approve the following experimental course for Spring 2002 and place it on the next Academic Senate Agenda as an informational item.

**Experimental Course**

**Course number** CS-299  (To substitute for CS-203)  
**Course Title** Algorithmic Problem Solving 2  
**Course Description** User defined data types, pointers and linked lists, ADT’s, stacks, queues, recursion, searching and simple sorting, elementary memory management. Object oriented problem solving.  
**Prerequisite** CS-101 with a grade of C or better.  
**Hours and credits** 3 class hours, 2 recitation hours, 4 credits

**Course to be replaced:**

**Course number** CS 203  
**Course Title** Introduction to Computer Science  
**Course Description** Continuation of CS-101. Multidimensional array graphics; introduction to data structures.  
**Prerequisite** CS-101  
**Hours and credits** 3 class hours, 3 credits

**Rationale:**

Over 60% of our Computer Science students transfer to Queens College. Our courses articulate directly with theirs and this articulation is reevaluated at least once a term. Meetings are held with the Computer Science Chair at QC and curriculum discussions ensue. The new Chair at QC has made drastic changes this term in the curriculum requirements at QC and as of Spring 2002 will no longer allow our CS 203 to transfer. We must change the content, credits, and hours to match theirs. In addition, QC students and transfer students must take a qualifying exam to be eligible to take junior level Computer Science courses at QC. Our current CS 203 will not properly prepare the students for this exam.

We are asking for permission to run two sections of an experimental course CS 299 for Spring 2002. This course will articulate directly with QC and also prepare the students for the qualifying exam. Queens College gave us a very small window in which to catch up with their changes. In order to serve our current students properly, we must make this change immediately. We are in the process of revamping the whole Computer Science curriculum to articulate with QC and will present these changes to the Curriculum Committee in a timely and appropriate manner.

On behalf of our students, the department thanks you for your consideration and help in this unusual situation.
Proposal for an Experimental Course in Computer Science

1. Course number  CS-299  (To substitute for CS-203 – experimental trial)
2. Course Title  Algorithmic Problem Solving 2
3. Course Description  User defined data types, pointers and linked lists, ADT’s, stacks, queues, recursion, searching and simple sorting, elementary memory management. Object oriented problem solving.
4. Prerequisite  CS-101 with a grade of C or better.
5. Hours and credits  3 class hours, 2 recitation hours, 4 credits
6. Rationale  Sixty percent or more of our computer science students indicate that they plan to continue their study at Queens College. This is consistent with past statistics. The Computer Science Department at QC has restructured the entire CS curriculum. This includes a change in hours for the second programming course in the C++ programming language. This proposed change in QCC existing course CS 203 will allow students to take a course that would articulate or be accepted as equivalent to the revised second programming course at QC. Students in CS at QC and transfer students to QC will be required to pass a qualifying exam before upper level courses in CS at QC. The proposed experimental course will cover material included in this qualifying exam. We expect to offer two sections of this experimental course during the spring 2002 semester with a total of about 40 students. The Mathematics and Computer Science Department is in the process of revising the CS course structure and will send a proposal to the Curriculum Committee with the changes.
7. Outcomes  Students will demonstrate understanding and skills required for object oriented programming with introductory data structures.
8. Assessment  Written examinations and programming projects
9. Course outline  See attachment
10. Methods of instruction  Lecture and recitation.
11. Text  See attachment
12. Curriculum  The course can be used to satisfy liberal arts and science requirements and the concentration in science and mathematics.
13. Transferability

CS 203 has been accepted as the second programming course at Queens College and City College. In order to assure continued transferability to Queens College, CS 299 must be substituted for CS 203. The substitution of CS 299 for CS 203 is expected to continue to transfer.

14. Faculty available

Five faculty in the department are able to teach this course.

15. Facilities

The department offers the use of three computer laboratories for student projects.

16. Courses withdrawn

This course will substitute for CS 203 for the spring 2002 semester.
Queensborough Community College
The City University of New York

3 class hours
2 recitation hours
4 credits

Title: CS-299 Algorithmic Problem Solving 2

Text: Programming and problem Solving with C++, 2nd edition
by: Dale, Weems and Headington
Jones and Bartlett

Objectives: Continuation of the study of C++, introduction to object oriented programming and data structures

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<tr>
<th>Chapter</th>
<th>Topic</th>
<th>Week</th>
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<tr>
<td>10</td>
<td>Review of simple data types, user defined data types</td>
<td>1</td>
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<td>12</td>
<td>Structured types, data abstraction and classes</td>
<td>2 – 3</td>
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<td>13</td>
<td>Array based lists, searching and sorting</td>
<td>4 - 5</td>
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<td>14</td>
<td>Object oriented software development</td>
<td>6 – 8</td>
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<td>15</td>
<td>Pointers, dynamic data and memory management</td>
<td>9 – 10</td>
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<tr>
<td>16</td>
<td>Linked structures, stacks and queues</td>
<td>11 – 13</td>
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<td>17</td>
<td>Review of recursion, recursion with pointer variables</td>
<td>14</td>
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Department: Physics

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<td>1.</td>
<td><strong>Course number</strong></td>
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<td>PH 240</td>
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<td>2.</td>
<td><strong>Course title:</strong> GRAPHICAL PROGRAMMING AND THE USE OF COMPUTERS FOR PHYSICAL MEASUREMENTS</td>
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<td>3.</td>
<td><strong>Course description for the college catalog:</strong> In this course students will learn programming using a graphical program language such as LabVIEW™ and to use the computer for measurement and automation applications. Topics include; theory of measurement, physical principles of transducers and their use in measurement, instrument control, data acquisition, virtual instrumentation, transducers, signal/data conditioning and analysis.</td>
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<td>4.</td>
<td><strong>Prerequisites:</strong> One science, electrical technology or mechanical technology course with a laboratory, MA–114, MA–120 or the equivalent and ET – 501, PH – 303, BU – 500 or permission of the department.</td>
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<td>5.</td>
<td><strong>Hours and credits:</strong> 2 hours lecture 3 hours laboratory 3 credits</td>
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<td>6.</td>
<td><strong>Rationale - why the course is needed or desired; student demand; projected enrollment; how often it will be offered, etc.</strong> In today's world many measurements are made through instruments that are interfaced to and controlled by computers. Scientists, engineers and technicians are expected to work with these devices. There is a growing trend for computer controlled processes as well (automation). The software used for instrument and process control are graphical programming languages such as LabVIEW™. Knowledge of LabVIEW™ will give students an advantage when they look for a job in science, engineering or technology.</td>
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<td>7.</td>
<td><strong>Outcomes - specific goals that students are expected to achieve and competencies they are expected to develop</strong> Upon completion of this course students will; Be able to write programs in a graphical programming language to control instruments, acquire and analyze data and simulate and control processes. Students will be able to select, interface and control the appropriate devices in order to make physical measurements.</td>
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<td>8.</td>
<td><strong>Assessment – methods used to determine the success of students (whether or not they achieved the goals and developed the competencies)</strong> Students will demonstrate meeting the outcomes by writing programs and completing projects that include interfacing and control of laboratory instruments and data acquisition and analysis.</td>
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9. A detailed course outline (include a laboratory outline when applicable)
   Week 1 – Theory of measurement, static versus dynamic measurements, response curve, instrument timing

   Week 2 - LabVIEW Basics: startup screen, front panel and diagram windows, menus, loading and saving Vis
         Virtual instruments: front panel, block diagram, data flow programming

   Week 2 – Editing and Debugging virtual instruments
         Sub VIs: icons and connectors, creating and saving a sub VI, hierarchy

   Week 3 – LabVIEW programming: for loop, while loop, shift registers

   Week 4 – Case structures, Sequence structures and Formula nodes

   Week 5 – Arrays and Clusters: creating arrays, array functions, polymorphism, creating clusters, cluster functions

   Week 6 – Graphical output: Waveform charts, waveform graphs, customization
         Data conditioning: strings and File I/O

   Week 7 – Transducers: physical principles of transducers, common transducers

   Weeks 8,9 – Data Acquisition: components of a DAQ system, types of signals and signal conditioning

   Weeks 10,11 – Instrument Control: detecting and configuring instruments, instrument drivers, serial communication (i.e. RS232), parallel communication (GPIB, IEEE488.2), VISA (virtual instrument software architecture) drivers

   Weeks 12,13,14 – Data analysis: curve fitting, measurement statistics, sampling theory

   Week 15 – Final Projects due and Final Exam

10. Methods of Instruction (such as lecture, distance learning, the web, television, writing intensive)
    Lectures, multimedia presentations, the use of the internet, laboratory work both physical and computer.

11. Texts, references and aids. A bibliography for the course and supplementary material, if any.
    TEXT: Learning with LabVIEW™ 6i by Robert H. Bishop. The text comes with a student version of LabVIEW™ 6i.
    REFERENCES: LabVIEW Graphical Programming by Gary W. Johnson
                 Sensors, Transducers and LabVIEW by Barry E. Paton
                 Computer-Based Electronic Measurement by Bruce Buckman
                 Are just a few of the many books on graphical programming and computer data acquisition and instrument control.
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<th>12. Curricula into which the course would be incorporated and the requirements it will satisfy.</th>
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<td>This course initially will not be incorporated into any curriculum. The physics department plans to replace the required course, PH236 with the requirement of either PH236 or PH240 in the laser and fiber-optics technology curriculum assuming PH240 is approved by the senate.</td>
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<th>13. Transferability as an elective or course required by a major to senior colleges (with supporting documents if applicable). Include comparable courses at senior or other community colleges, if applicable.</th>
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<td>Not transferable within CUNY as anything other than an elective, at this time. The physics department is discussing the possible transferability with Hunter. The department is also looking into the transferability to institutions outside of CUNY.</td>
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| 14. Faculty availability: There are a number of qualified instructors in the department. |

| 15. Facilities and technology availability: No new facilities required. |

| 16. List of courses to be withdrawn, or replaced by this course, if any: None |

**Note:** In special instances additional information is required.

A. When a course is **remedial, developmental or compensatory**, with the contact hours exceeding the credits, a detailed explanation must be given indicating the amount of student effort required. These courses, to be properly counted toward a student's load, should be designed such that each class hour requires two hours of “homework.”

B. Where a course carries more credits than contact hours, a special justification must be given to explain why the credits exceed the contact hours.

C. In the case of courses given in non-organized classes such as field work, internships, independent study and the like, an explanation must be given as to how the students will earn credits consistent with the student effort required in organized classes.

D. When a course, not covered in A. above, carries less than a total of one credit per lecture hour plus one-half credit per recitation hour plus one-half credit per laboratory hour, a justification for the smaller number of credits must be given.