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4-5-2010

Restructuring the Major in Computer Science

The College at Brockport, College Senate

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The College at
BROCKPORT
 STATE UNIVERSITY OF NEW YORK
 College Senate
 350 New Campus Drive
 Brockport, NY 14420

Resolution # 26
 2009-2010
 College Senate

New Resolution:
 Supersedes Res #:

TO: Dr. John R. Halstead, College President

FROM: The College Senate: *April 5, 2010*

- RE: → I. Formal Resolution (*Act of Determination*)
 II. Recommendation (*Urging the Fitness of*)
 III. Other, For Your Information (*Notice, Request, Report, etc.*)

SUBJ: *Restructuring the Major in Computer Science (CSC)* (routing #41 09-10 UC)


Signed:  Date: 4/9/10
 (Steven Lewis, 2009-10 College Senate President)

Please fill out the bottom portion and follow the distribution instructions at the end of this page.

TO: Steven Lewis, College Senate President

FROM: John R. Halstead, College President

- RE: → I. Decision and Action Taken on Formal Resolution (circle choice)
 a. Accepted - Implementation Effective Date: Fall 2010
 b. Deferred for discussion with the Faculty Senate on ___/___/___
 c. Unacceptable for the reasons contained in the attached explanation
 II, III. Response to Recommendation or Other/FYI
 a. Received and acknowledged ___/___/___

b. Comment: _____
 Signed:  Date: 4/14/10
 (Dr. John R. Halstead, President, The College at Brockport)

DISTRIBUTION

Upon approval, the College President will forward copies of resolutions to his staff who will, in turn, forward copies to their staff. The College Senate Office will post resolutions to the College Senate Web at <http://www.brockport.edu/collegesenate/resolutions>.

**COLLEGE SENATE OFFICE
RESOLUTION PROPOSAL COVER PAGE**

Routing Number <i>Routing # assigned by Senate Office</i>	#41 09-10 UC <i>Use routing number and title in all reference to this proposal.</i>
Replaces Resolution	#

DEADLINE FOR SUBMISSIONS: FEBRUARY 28

Incomplete proposals or proposals received after the deadline may not be reviewed until next semester.

INSTRUCTIONS – please, no multiple attachments – each proposal must be submitted electronically as one document.

- Submit only complete proposals. Include support letters from department chair and dean.
- Proposals must be prepared individually in Word format using committee guidelines available at brockport.edu/collegesenate/proposal.html.
- Fill out this cover page for each proposal and insert it electronically as the front page of your document. (collegesenate/proposal.html)
- Email whole proposal with cover page as one attachment to senate@brockport.edu and facprez@brockport.edu.
- All updates must be resubmitted to the Senate office with the original cover page including routing number.
- Questions? Call the Senate office at 395-2586 or the appropriate committee chairperson.

1. **PROPOSAL TITLE:** Please be somewhat descriptive, i.e. *Graduate Probation/Dismissal Proposal* rather than *Graduate Proposal*.

Restructuring the Major in Computer Science (CSC)

2. BRIEF DESCRIPTION OF PROPOSAL:

The Advanced Computing (AC) Track of the Computer Science major is currently accredited by ABET. In October 2008, a 3 member team of experts visited the college as part of ABET's re-accreditation review. Based on the feedback from this visit and our program assessment, we propose to revise the requirements. Changes made to the AC Track require corresponding changes to the Software Development (SD) Track as they have several courses in common.

3. HOW WILL THIS EFFECT TRANSFER STUDENTS:

There are no adverse effects. A student with CSC 203, CSC 205, MTH 201, and MTH 281 in transfer credits should be able to complete the program in 4 semesters.

4. **ANTICIPATED EFFECTIVE DATE:**

FALL 2010

4. **SUBMISSION & REVISION DATES:** PLEASE PUT A DATE ON ALL UPDATED DOCUMENTS TO AVOID CONFUSION.

<i>First Submission</i>	<i>Updated on</i>	<i>Updated on</i>	<i>Updated on</i>
February 19, 2010	3/17/10 (supporting letters)		

5. **SUBMITTED BY: (contact person)**

<i>Name</i>	<i>Department</i>	<i>Phone</i>	<i>Email</i>
Dr. T.M. Rao	Computer Science	395-5176	trao@brockport.edu

6. **COMMITTEES TO COPY: (Senate office use only)**

Standing Committee	Forwarded For Approval To	Dates
<input type="checkbox"/> Enrollment Planning & Policies	Committee for approval	2/24/10, 3/17/10
<input type="checkbox"/> Faculty & Professional Staff Policies	Executive Committee	3/8/10
<input type="checkbox"/> General Education & Curriculum Policies *	GED to Vice Provost	
<input type="checkbox"/> Graduate Curriculum & Policies	Senate	3/22/10
<input type="checkbox"/> Student Policies	College President	4/8/10
<input checked="" type="checkbox"/> Undergraduate Curriculum & Policies	OTHER	
* follow special Gen Ed procedures for submission of General Education proposals at "How to Submit Proposals" on our Website.		
	REJECTED -WITHDRAWN	

NOTES:

**The College at Brockport, State University of New York
Department of Computer Science**

Major In Computer Science (AC and SD Tracks)

0. Intent of the Proposal

The Department of Computer Science at The College at Brockport, State University of New York currently offers an undergraduate degree program in computer science (CSC) under two possible tracks: Advanced Computing (AC) and Software Development (SD) tracks. The Advanced Computing Track is recommended for first-year college students with a strong preparation in mathematics and science. The Software Development Track is recommended for transfer students and double majors with interest in software development. The requirements for the Software Development Track form a subset of those for the Advanced Computing Track. This proposal addresses the revision of the requirements for the major, to take effect in Fall 2010. The number of credits in the major remains the same. No additional resources are needed to implement the revision and no other is department is affected by the changes.

1. Rationale for Restructuring

The department wishes to revise the requirements for the CSC major for the following reasons:

- a. The Advanced Computing (AC) Track of the Computer Science major is currently accredited by the Computing Accreditation Commission (CAC) of ABET, Inc (www.abet.org). In accordance with ABET policies for renewing this accreditation, an evaluation team of three experts visited the College during October 19 – 21, 2008. These experts conducted a thorough evaluation of the structure of our curriculum, the content of our courses, our assessment processes, laboratory facilities, faculty credentials, and financial and other support for our program. As part of their conclusions, the team suggested some changes to our curriculum.
- b. ABET has revised their criteria for accreditation of computing programs, which became effective for the 2009-10 cycle. In addition, ABET has released drafts of further revision to their criteria effective 2011-12.
- c. Our own program assessment efforts have shown us a need to strengthen some components of our program.

2. Proposed Changes for the AC Track

a. **Mathematics and science corequisites requirements**

Current Status: Our current mathematics and science corequisites requirements are based on the ABET criteria that were in effect until recently.

Proposed Change: The new science corequisites include three laboratory courses chosen from the following list: BIO 201, BIO 202, CHM 205, CHM 206, ENV 202, ENV 303, ESC 211, ESC 311, PHS 235, and PHS 240. Restrictions have been reworded.

Rationale: This will bring our requirements in line with the revised ABET criteria and allow more choices to our students.

b. **Minimum C requirement**

Current Status: A minimum grade of C is required in CSC 203, 205 and 311.

Proposed Change: A minimum grade of C is required in CSC 203, CSC 205, CSC 209, CSC 303 and CSC 311.

Rationale: Strengthening the graduation requirements.

c. **Credit by Examination**

Current Status: A maximum of six credits can be earned by “credit by portfolio assessment,” and a maximum of six credits can be earned by “departmental credit by examination.”

Proposed Change: Credits (1-4) for at most one course can be earned by “departmental credit by examination.”

Rationale: Feedback from the ABET visiting team; strengthening the graduation requirements.

2.1 Side-by-side Comparison for the AC Track (*Changes appear in bold*)

Existing Program Computer Science (Advanced Computing Track)				New Program Computer Science (Advanced Computing Track)			
For a major in computer science in the AC track, a student must complete the following 68 credits of computer science, mathematics and science courses with an average grade of “C” or better in core and elective courses. In addition, the grade for each of CSC 203, 205 and 311 must be “C” or better. Other restrictions apply. See Notes below.				For a major in computer science in the AC track, a student must complete the following 68 credits of computer science, mathematics and science courses with an average grade of “C” or better in core and elective courses. In addition, the grade for each of CSC 203, 205, 209, 303 and 311 must be “C” or better. Other restrictions apply. See Notes below.			
A. Core Courses (37 Credits)		Credits		A. Core Courses (37 Credits)		Credits	
CSC	203	Fundamentals of Computer Science I	4	CSC	203	Fundamentals of Computer Science I	4
CSC	205	Fundamentals of Computer Science II	4	CSC	205	Fundamentals of Computer Science II	4
CSC	209	UNIX Tools	1	CSC	209	UNIX Tools	1
CSC	303	Digital Logic and Computer Design	3	CSC	303	Digital Logic and Computer Design	3
CSC	311	Computer Organization and Software Interface	4	CSC	311	Computer Organization and Software Interface	4
CSC	401	Programming Languages	3	CSC	401	Programming Languages	3
CSC	406	Algorithms and Data Structures	3	CSC	406	Algorithms and Data Structures	3
CSC	411	Computer Architecture	3	CSC	411	Computer Architecture	3
CSC	412	Operating Systems	3	CSC	412	Operating Systems	3
CSC	427	Software Systems Engineering	3	CSC	427	Software Systems Engineering	3
CSC	483	Theory of Computation	3	CSC	483	Theory of Computation	3
CSC	486	Junior/Senior Seminar	3	CSC	486	Junior/Senior Seminar	3
B. Elective Courses (9 Credits)				B. Elective Courses (9 Credits)			
Three courses from the list of CSC courses numbered 400-489, selected under advisement. Restrictions apply. See notes below.		9		Three courses from the list of CSC courses numbered 400-489, selected under advisement. Restrictions apply. See notes below.		9	
C. Math Corequisites (10 Credits)				C. Math Corequisites (10 Credits)			
MTH	202	Calculus II	4	MTH	202	Calculus II	4
MTH	346	Probability and Statistics I	3	MTH	346	Probability and Statistics I	3
MTH	481	Discrete Mathematics II	3	MTH	481	Discrete Mathematics II	3
D. Science Corequisites (12 Credits)				D. Science Corequisites (12 Credits)			
A two-semester sequence in a lab science for science/engineering majors. For example, PHS 235-240, CHM 205-206, BIO 201-202, ENV 202-303, ESC 211-311, GEL 201-302		8		Three laboratory science courses from the following list:		12	
Each remaining course must be a course in science or a course that enhances the student’s abilities in the application of the scientific method. Each course must be a course for science/engineering majors or a course with a strong emphasis on quantitative methods		4		BIO 201, BIO 202, CHM 205, CHM 206, ENV 202, ENV 303, ESC 211, ESC 311, PHS 235, PHS 240			
Total:		68		Total:		68	
Notes:				Notes:			
1. The prerequisite for CSC 203 is CSC 120. The prerequisite for MTH 202 is MTH 201. The prerequisites for MTH 481 are MTH 201 and MTH 281.				1. The prerequisite for CSC 203 is CSC 120. The prerequisite for MTH 202 is MTH 201. The prerequisites for MTH 481 are MTH 201 and MTH 281.			
2. A student must take at least 30 credits in non-mathematics, non-science courses.				2. A student must take at least 15 credits in mathematics courses. These credits must be from MTH courses that are allowed as part of MTH major, except MTH 405, 412, 420, 492, and 499.			
3. A student must take at least 15 credits in mathematics courses.							

<p>4. A student must take at least 30 credits in mathematics and science courses combined.</p> <p>5. At least 18 of the credits used to satisfy the core or elective requirements in the major must be earned at Brockport.</p> <p>6. A maximum of six credits can be earned by “credit by portfolio assessment,” and a maximum of six credits can be earned by “departmental credit by examination.”</p>	<p>3. A student must take at least 30 credits in mathematics and science courses combined. These credits must be from MTH/Science courses allowed as part of MTH, BIO, CHM, ENV, ESC, or PHS majors.</p> <p>4. At least 18 of the credits used to satisfy the core or elective requirements in the major must be earned at Brockport.</p> <p>5. Credits (1-4) for at most one course can be earned by “departmental credit by examination.”</p>
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3. Proposed Changes for the SD Track

a. Minimum C requirement

This is identical to the change presented for the AC Track of the Computer Science major.

b. Credit by Examination

This is identical to the change presented for the AC Track of the Computer Science major.

3.1 Side-by-side Comparison for the SD Track (*Changes appear in bold*)

Existing Program Computer Science (Software Development Track)				New Program Computer Science (Software Development Track)			
For a major in computer science in the SD track, a student must complete the following 43 credits of computer science and mathematics courses with an average grade of “C” or better in core and elective courses. In addition, the grade for each of CSC 203, 205 and 311 must be “C” or better. Other restrictions apply. See Notes below.				For a major in computer science in the SD track, a student must complete the following 43 credits of computer science and mathematics courses with an average grade of “C” or better in core and elective courses. In addition, the grade for each of CSC 203, 205, 209, 303 and 311 must be “C” or better. Other restrictions apply. See Notes below.			
A. Core Courses (28 Credits)		Credits		A. Core Courses (28 Credits)		Credits	
CSC	203	Fundamentals of Computer Science I	4	CSC	203	Fundamentals of Computer Science I	4
CSC	205	Fundamentals of Computer Science II	4	CSC	205	Fundamentals of Computer Science II	4
CSC	209	UNIX Tools	1	CSC	209	UNIX Tools	1
CSC	303	Digital Logic and Computer Design	3	CSC	303	Digital Logic and Computer Design	3
CSC	311	Computer Organization and Software Interface	4	CSC	311	Computer Organization and Software Interface	4
CSC	401	Programming Languages	3	CSC	401	Programming Languages	3
CSC	406	Algorithms and Data Structures	3	CSC	406	Algorithms and Data Structures	3
CSC	411	Computer Architecture	3	CSC	411	Computer Architecture	3
CSC	486	Junior/Senior Seminar	3	CSC	486	Junior/Senior Seminar	3
B. Elective Courses (12 Credits)				B. Elective Courses (12 Credits)			
Four courses from the list of CSC courses numbered 400-489, selected under advisement. Restrictions apply. See notes below.		12		Four courses from the list of CSC courses numbered 400-489, selected under advisement. Restrictions apply. See notes below.		12	
C. Math Corequisites (3 Credits)				C. Math Corequisites (3 Credits)			
MTH	481	Discrete Mathematics II	3	MTH	481	Discrete Mathematics II	3
Total:		43		Total:		43	

<p>Notes:</p> <ol style="list-style-type: none"> 1. The prerequisite for CSC 203 is CSC 120. The prerequisites for MTH 481 are MTH 201 and MTH 281. 2. At least 18 of the credits used to satisfy the core or elective requirements in the major must be earned at Brockport. 3. A maximum of six credits can be earned by “credit by portfolio assessment,” and a maximum of six credits can be earned by “departmental credit by examination.” 	<p>Notes:</p> <ol style="list-style-type: none"> 1. The prerequisite for CSC 203 is CSC 120. The prerequisites for MTH 481 are MTH 201 and MTH 281. 2. At least 18 of the credits used to satisfy the core or elective requirements in the major must be earned at Brockport. 3. Credits (1-4) for at most one course can be earned by “departmental credit by examination.”
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4. Staffing Issues

The department has enough faculty resources to support these changes. No new faculty or other resources are requested.

5. Academic Administration Commentary

The proposed changes are as a result of extensive discussion in the department’s Curriculum Committee. It has the full support of the department.

6. Resources and Facilities

Existing facilities are sufficient for implementing the proposed changes. No new facilities are requested.

7. Letters of Support

Dr. Kad Lakshmanan, Chair, Department of Computer Science
Dr. Stuart Appelle, Dean, School of Science and Mathematics

The Curriculum Committee of the Department of Computer Science, which includes me as a member, approved this proposal on February 15, 2010 by majority vote. I support the proposed changes.

Kad Lakshmanan, Professor and Chair, Computer Science

February 15, 2010

Return-Path: <sappelle@brockport.edu>
Received: from dhcp74.fobl.brockport.edu (EHLO 268FOB) ([137.21.101.234])
by email.cis.brockport.edu (MOS 4.1.8-GA FastPath queued)
with ESMTP id APK73837 (AUTH sappelle);
Fri, 19 Feb 2010 15:41:35 -0500 (EST)
Reply-To: <sappelle@brockport.edu>
From: "Stuart Appelle" <sappelle@brockport.edu>
To: "'Kad Lakshmanan'" <klakshma@brockport.edu>
Subject: Computer Science Proposal
Date: Fri, 19 Feb 2010 15:41:39 -0500
Organization: The College at Brockport
Message-ID: <007901cabla3\$ef99a550\$ceceff0\$@edu>
MIME-Version: 1.0
Content-Type: multipart/alternative;
boundary="-----_NextPart_000_007A_01CAB17A.06C39D50"
X-Mailer: Microsoft Office Outlook 12.0
thread-index: Acqxo+96P174v1lukQZOR3mXK7WX+JA==
Content-Language: en-us

This is a multi-part message in MIME format.

-----_NextPart_000_007A_01CAB17A.06C39D50
Content-Type: text/plain;
charset="US-ASCII"
Content-Transfer-Encoding: 7bit

Kad:

I support the proposed changes specified in your College Senate proposal submission "Restructuring the Major in Computer Science".

Stuart Appelle, Ph.D.
Dean, School of Science and Mathematics
350 New Campus Drive
The College at Brockport
State University of New York
Brockport, New York 14420

Date: Thu, 11 Mar 2010 14:33:27 -0500

From: scott rochette <docrochette@gmail.com> 

Hello Joan...on behalf of the Earth Sciences department, I support the proposed changes outlined in Senate Proposal #41 09-10 UC.

Cheers,
Scott

--

Scott M. Rochette, Ph.D.
Associate Professor of Meteorology and Chair
Department of the Earth Sciences

The College at Brockport
(585) 395-2603

Date: Tue, 09 Mar 2010 10:58:45 -0500

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Go to

From: Rey Sia <rsia@brockport.edu>

Subject: Re: Biology courses for Computer Science majors

To: jlucas@brockport.edu

Hi Joan,

The Department of Biology supports these minor revisions. Thanks for bringing this to our attention.

Rey A. Sia, Ph.D.
Associate Professor and Chairperson
Dept. of Biology
The College at Brockport
State University of New York
350 New Campus Dr.
Brockport, NY 14420
585-395-2783

Date: Tue, 09 Mar 2010 10:46:47 -0500

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From: James Haynes <jhaynes@brockport.edu>

Subject: Re: Env Sci courses for Computer Science majors

To: jlucas@brockport.edu

Hi, Joan--

I see no issues for ESB related to your proposed changes.

For a future discussion, we now offer a 4-cr lab course, Biology of Organisms (ENV 204) that is suitable for your list of supporting science courses. To date we have restricted it to ENV majors only but that may change. If it does, I will let CSC know.

Cheers! JMH

James M. Haynes, Ph.D.
Professor and Chairman
Department of Environmental Science & Biology
SUNY College at Brockport
350 New Campus Drive
Brockport, NY 14420-2973
585-395-5783 (tel)
585-395-5969 (fax)
jhaynes@brockport.edu

Date: Tue, 09 Mar 2010 07:58:38 -0500

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From: Stephen Godleski <sgodlesk@brockport.edu>

Subject: Re: Chemistry courses for CS students

To: jlucas@brockport.edu

Joan

The Chem Dept supports these changes.
Thanks.

Stephen Godleski
Professor and Chair
SUNY Brockport
Department of Chemistry
585-395-5595

Date: Tue, 09 Mar 2010 07:40:47 -0500

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From: Stanley Radford <sradford@brockport.edu>

To: jlucas@brockport.edu

Joan,

I have reviewed Senate Proposal #41 "Restructuring the Major in Computer Science (CSC)." The minor modifications to the science requirements seem quite reasonable. The Department of Physics should be able to handle any resultant slight change in the number of students in our introductory sequence PHS 235/240. We support the proposal.

SFR
Stanley F. Radford, Ph.D.
Professor and Chairman
Department of Physics
The College at Brockport