UNIVERSITY OF WASHINGTON

DEPARTMENT OF TECHNICAL COMMUNICATION
College of Engineering

June 29, 2008

TO: Suzanne Ortega, Vice Provost and Dean, Graduate School
James Antony, Associate Dean, Graduate School
Kenyon Chan, UWB Chancellor
Susan Jeffords, UWB Vice Chancellor for Academic Affairs

CC: Doug Wadden, Executive Vice Provost
John Sahr, Associate Dean for Undergraduate Academic Affairs
David Canfield-Budde, Graduate School Academic Programs Office

FROM: Review Committee, UW-Bothell Computing and Software Systems Program

This letter transmits the Report of the Ten-Year Review Committee for the Computing and Software Systems Program at UW-Bothell.

The review process went very smoothly, ably facilitated by the Graduate School's Academic Programs Office, and with the full support of faculty, staff, and students of the Computing and Software Systems Program.

The report represents the consensus of all members of the review committee: its broad outline was drafted immediately following the site visit, committee members were tasked to develop specific sections of the report, it was then assembled by the chair, and approved by all members of the committee. The committee functioned very efficiently and found itself to be in agreement very quickly on all major points.

It was a very educational experience for all members of the committee and we sincerely hope that you find our analysis and recommendations of value in helping you improve this already fine program at the University of Washington-Bothell.

Judy Ramey, Professor, UWTC, Committee Chair
(Committee members: Steven Hanks, Professor, UW Tacoma Computing & Software Systems; Alan Wood, Professor, UW Bothell IAS; Steve Cunningham, Professor Emeritus, Department of Computer Science, California State University Stanislaus; and David Evans, Associate Professor, Department of Computer Science, University of Virginia)

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Ten-Year Program Review, UW-Bothell Computing and Software Systems Program

Introduction

This report of the findings of the ten-year review of UW-Bothell Computing and Software Systems (CSS) has three main sections: an overview of findings, a discussion of the opportunities and challenges facing the program, and a closing summary of recommended actions of two kinds: strategic actions to be taken over a longer term and immediate actions to be taken as soon as possible.

Overview of Findings

This opening section presents the committee's impression of the health and morale of the unit, offers a brief summary of the unit's history to serve as a backdrop and context for our more detailed discussion in the next section, and closes with the committee's overall findings and recommendations with regard to continuance of the program.

Impressions of the Health and Morale of the Unit

All of us on the Review Committee were very impressed with the faculty, staff, and students in the CSS program. The faculty and staff are highly committed to the success of their students and of the program as a whole. The students themselves are very conscious of the quality of the program, very proud to be in it, very committed to their own education, and very appreciative of the efforts of the faculty and staff on their behalf. The entire community appears to enjoy a mutually respectful and highly collegial culture.

Everyone seems very happy with the current program director and others who have played administrative roles in the unit. The group appears unanimous in believing that these administrators have made extraordinary efforts to foster the healthy operation of the unit, sometimes against daunting challenges. The unit also appears to have an excellent relationship with the community and technical colleges (CTC). The CTC representatives with whom we talked spoke highly of the program's outreach and recruiting activities, responsiveness to student interest, and mentoring of admitted students from their programs.

Although the *esprit* of the unit appears high, the committee also noted an undercurrent of feeling that the unit's requirements are not understood by the broader UW-Bothell community, especially with respect to the required technical preparation of incoming students, and that this misunderstanding has given rise to misperceptions that the unit's

faculty are out of step with the broader campus value system and practices. The issue of enrollment levels appears to have exacerbated these feelings. The committee believes that these feelings result at least in part from a lack of communication and a degree of entrenchment on both sides. We understand that the enrollment problem is a real one, and we see our role as trying to help both the program and the administration to find a way out of that problem. At several points in the next main section, we suggest actions that can be taken to improve the situation.

Contextual History and Difficulties

We are especially sensitive to the contextual difficulties of the CSS program. We recognize that they have a complex origin, stemming in part from the fact that the UW Bothell campus began as an interdisciplinary initiative, as well as its being still so young, growing so fast, and being so dependent on student enrollment for its budget revenue (over 90 percent, as opposed to about 11 percent for the Seattle campus). Taken as a whole, these factors act as a kind of nexus of constraints that continually influence faculty decisions on issues that in other places might have a wider latitude of flexibility. In some cases, these constraints also contain opportunity.

The fact that the campus began as an interdisciplinary entity, starting with a faculty in Interdisciplinary Arts and Sciences (IAS) who had an almost missionary zeal to be innovative, created a culture that has been sometimes suspicious of traditional disciplinary boundaries. Since the campus is so small and so new, these early faculty members have exercised a degree of influence that would not exist at a more mature campus. For understandable reasons, these founders have often been apprehensive that the pull of disciplinary perspectives would undermine the innovative character of the campus and restore the traditional barriers to intellectual collaboration that exist at most universities. This has created a certain degree of tension between them and faculty members in CSS (and some in IAS as well) who teach subjects that require a solid foundation of technical knowledge at the introductory level (sometimes requiring a substantial introductory prerequisite sequence of courses) before students are able to take a full complement of upper-division courses. In the absence of that knowledge, students are much less likely to succeed. Although this overall tension in the institution has acted as a brake on all STEM (science, technology, engineering, and mathematics) disciplines, we find the discussions within the campus community surrounding possible STEM initiatives very encouraging, and offer the possibility that the barriers to disciplinary majors may be removed. At the same time, we are very impressed with the interdisciplinary nature of the campus and hope that the two perspectives—disciplinary and interdisciplinary—can co-exist in a mutually enriching partnership.

The youth of the campus gives rise to another significant constraint, namely the extraordinary burden of institution-building that falls on the existing faculty, requiring an unsustainable level of effort to staff search committees, strategic-planning committees, building planning committees, new curriculum development committees, promotion and tenure committees (often in neighboring and sometimes completely unrelated

disciplines), tri-campus committees of all kinds required by the need to relate on multiple levels with a wide variety of organizations on the Seattle campus, marketing committees, community-college related committees, community-based committees, etc. The list can seem endless, far exceeding the normal level of committee work expected of an individual faculty member at a mature campus. In addition, to compound the problem, most of the faculty on the campus are junior faculty or very recently promoted to associate professor. The campus has very few full professors because it was in essence built by assistant professors who have now been promoted to associate level, but not full. Here the failure of the campus as a whole to articulate clearly the expectations for promotion and tenure is particularly acute, and acts as a constant irritant to individual faculty members trying to juggle so many conflicting demands.

We cannot close this section without mentioning one overall positive element. The fact that the campus is slated to continue to grow rapidly in the near future is a major opportunity, as it will enable the faculty to develop in ways that respond innovatively to the needs of the future. This campus, with all its challenges, is truly a campus for the twenty-first century. We find that very exciting.

Overall Findings and Recommendations concerning Continuance

The committee offers the following overall findings and recommendations concerning the continuance of the programs administered by CSS:

Overall Findings

- CSS is serving the student populations and community it was intended to serve.
- The BS program is healthy.
- The BA program has transformational potential.

Recommendations concerning Continuance

- The Master's program should not be launched at this time.
- The unit should be continued and reviewed again in 10 years.

The following section provides supporting details and discussion for these major conclusions and offers a number of finer-grained findings and recommendations.

Opportunities and Challenges

CSS faces opportunities and challenges in a number of areas. The program as a whole faces issues related to diversity; recruiting, admission (including the problem of achieving appropriate enrollment numbers), and advising; and the development of a strategic vision. Also, each degree program has its own set of opportunities and

challenges. And finally, two larger campus-wide changes—the move to a four-year format and the STEM initiative—present their own opportunities and challenges. The following sections address each of these areas.

Issue for the Program as a Whole: Diversity

The review committee found the lack of representation of women and under-represented minorities in the CSS student population to be concerning. The introductory CSS 161 class we visited had 15 students, all of whom were male (the students said there had been one female student at the beginning of the quarter, but she dropped out). We did meet two female students at our meeting with students, but they expressed a sense of feeling out of place in the department. Although both were clear that they did not feel there was any bias at all from the faculty and staff, they expressed a sense of isolation and of feeling out of place. Although it is true that there are systemic issues with our national culture and the computing discipline that mean situations similar to the one at UW Bothell are not uncommon, the committee would urge the department to not use those external issues over which they have little control as an excuse or reason to ignore the local problems, but rather as further evidence that extra effort is required to produce an environment that is conducive to the success of the women students they do have, and to recruit more women students into their programs.

The program would benefit from paying particular attention to making the female/underrepresented students feel integrated and included once they are in the program. Certain specific steps we encourage the department to consider including are carefully assigning groups when students work in teams (one female student commented that in a class where students were expected to find partners themselves, she could not find anyone with whom to work), trying to create a more collaborative lab environment (many of the students who came to our meeting did not yet know each other even if they were in the same classes), and introducing more exciting applications of computing in the introductory courses (having assignments that involve solving real and interesting problems, not just technical exercises). For recruiting, we believe more focused efforts on publicizing and recruiting for the BA degree will provide a good opportunity to recruit students from less traditional backgrounds to the program, and would encourage the department to think broadly about where and how to target underrepresented students in their recruiting efforts.

Issue for the Program as a Whole: Recruiting, Admission, and Advising

Our evaluation of the recruiting, admission, and advising processes was based on interviews with appropriate staff members (Megan Hunter, Janet McDaniel, and Dina Meske), a representative from the UWB admissions office (director of admissions Jill Orcutt), as well as other conversations with faculty, staff, and students we had in the course of our visit.

Our predominant overall impression of the staff was extremely positive: they are working well as a team, and doing their jobs effectively. CTC partners reported that the staff effectively reaches out to potential transfer students in the classroom, and students consistently commented positively on the quality of the advising.

The staff seems over-extended, and pointed out that the only support they have is a single part-time student worker both to staff the reception desk and to do clerical tasks. We believe that everybody concerned would benefit by supplementing this level of support, and we encourage the administration to make resources available to supplement this position.

Although we heard nothing but positive comments about the in-person aspects of the recruiting process, the staff felt that the programs were not being adequately advertised, and that the program needs more of an identity or "brand" that could be communicated outside the University and CTC community.

We believe that the program would benefit from additional marketing, especially with respect to the promotion of the new BA (Applied Computing) degree. An important part of this process would be to develop a good profile of who the potential students are, and how they might be reached. We encourage the program to work with the office of Public Relations and Communications to define and execute such a campaign, and encourage the administration to consider making funds available to execute such a campaign. We believe that the BA degree, especially, has the potential to increase and diversify the program's enrollment, but defining and reaching potential students will take some effort and investment.

The area of admission seems more complicated and problematic. There was obvious tension between the CSS faculty and staff and the admissions office, and more than once we were told of a general external impression that the program was not "doing its part" in admitting students to the program, this in a context where the program was viewed as not educating its "fair share" of UWB students. The administration appeared to share this view to one degree or another.

Obviously the underlying problem of admission is an extremely difficult one: on the one hand it is in nobody's interest to admit students who do not have a reasonable chance of succeeding in the program – turning an admissions problem into a retention problem is not a solution. On the other hand, one cannot ignore the fact that the University as a whole has ambitious growth goals, and the program must reasonably be expected to help the University in attaining them. We expect that in the long run the diversification of the program's degree offerings and the availability of other science-and-technology-related programs will lead to more students, and less of a dependency between enrollment numbers and the "external marketplace" for computer science degrees.

At the same time, we are concerned by the tension this issue is causing, in particular between the program and the admissions office. Oddly enough, the point of contention

raised repeatedly is that of whether a student should be admitted to the program contingent on grades earned in the quarter prior to admission (in particular in an introductory programming class) or whether the admission decision should be made only after the grades have been recorded and received. The program has adopted the latter as policy, and the admissions office (along with other external stakeholders) believe that the policy is unnecessary, and leads to significant loss of qualified students. The program believes the opposite: that publishing a minimum acceptable grade would lead to the instructor awarding that grade even if it were not deserved, and that in any case few if any students are lost due to this policy.

It is striking to us that such a small matter of policy is the source of so much contention and ill will in an otherwise cordial and mutually supportive environment. We believe that the program should try hard (with the help of external mediation if that would be helpful) to reach a mutually agreeable compromise with the admissions office with respect to this admissions issue.

Issue for the Program as a Whole: Developing a Strategic Vision

Much of the program's energy seems spent on tactical matters – the day-to-day responsibilities in a young, changing department with aggressive obligations in the areas of teaching, research, and service, along with the additional stresses imposed by the program's size and the need to meet quarter-to-quarter enrollment expectations.

But at the same time, the program must realize that the way out of these short-term difficulties is through the strategic thinking, prioritizing, and decision making that will lead to a program that is strong and viable in the long run, and less subject to short-term pressures and tactical crises.

Looking at the relevant material in the program's self-study, we note that the most recent statement of the program's strategic priorities dates from November 2003, and can be summarized selectively as follows:

1. Minimize vulnerability to FTE variations
    a. Market the uniqueness of the Bothell campus by offering a new BA degree in CSS with a focus on something else
    b. Access new student populations by communicating with community and industry partners
    c. Market our curriculum, the number of graduates per year, and how well our alumni fill Information Technology positions
    d. Develop strategies that recruit more non-traditional students
2. Improve the research climate
    a. Identify mechanisms for increased access to graduate research assistants
    b. Participate with/create research "Center(s) of Excellence"
3. Increase external funding
4. Improve CSS program visibility

a. Improve CSS connections within UWB
b. Team up with other departments at Bothell, other UW campuses, etc., for joint research and teaching projects
c. Develop a "CSS Road Show"
d. Participate in outreach efforts such as research collaborations, speaking engagements and recruiting efforts.

Without meaning to make this section a criticism on the theme of unmet strategic goals, we do need to point out that many of these goals are exactly the problems we heard expressed in our visit, more than four years after these priorities were adopted. This is obviously not for lack of effort, but it is also important to point out that these priorities are extremely broad and far-reaching, even to the point that it is difficult to imagine them meaningfully setting the program's priorities.

Nonetheless, we feel it important to point out the need to form meaningful strategic priorities, and in this case we intend "meaningful" to suggest priorities that identify the program's core identity and key strengths, and result in resources being devoted to achieving the high-priority goals. Strategic goals that do not allow an organization to argue for and devote resources to certain initiatives – and allows it to argue not to pursue lower-priority initiatives – risk becoming irrelevant.

We recommend that the program re-visit its strategic vision and goals, with the idea of developing "actionable" goals. We think the following two questions should guide this process:

- How does the long-term mission and strategic goals of the program align with the long-term mission of the campus, and how can the alignment of the two missions lead to the program being better integrated into the campus's overall educational offerings?
- What is the program's unique identity with respect to the community of potential students and other external stakeholders, what opportunities arise from the identity so defined, and how can these opportunities be communicated to the community at large?

Discussion by degree: BS in Computing and Software Systems

This degree is the original degree in the CSS program, begun in 1996. It was initially planned as a degree that would focus on the background needed for software applications development, and included an emphasis on software engineering and professional communication. Over time, it has grown to include more traditional computer science aspects as well, so that now a student can have either a software applications emphasis or a computer science emphasis.

The structure of the degree is straightforward and traditional. There are prerequisite courses in mathematics, writing, and programming, followed by a core of computing fundamentals, followed by a set of elective courses that offer both breadth and depth. This strongly-structured approach is needed to ensure that the student's skills and knowledge are developed in a systematic way that allows success in advanced courses. The degree includes a significant internship or research experience, and both are very successful.

The review group believes that this is an intellectually sound degree that meets the needs of both students and employers, and the CSS program has a very dedicated and high-quality group of faculty who are deeply dedicated to it. However, the degree could benefit from additional resources to significantly improve the program by improving course offerings, addressing faculty balance, and permitting a creative examination of the program's prerequisite courses. The program needs to improve student support through more flexible course offerings and more student-oriented course scheduling and sequence. Over time the number of faculty with a software engineering emphasis has not increased, and the degree would also benefit from bringing in additional faculty with software engineering backgrounds as well as more women faculty.

There are two particular questions about the prerequisite courses in the BS program. One concerns the reliance on calculus as the "problem-solving skill" course. Many programs now use a discrete mathematics course to ensure a sound mathematics background, and such a course could also be seen as ensuring a sound problem-solving background. Alternately, other approaches to problem-solving maturity might be sought. A second question is the nature of the two-quarter programming sequence that builds fundamental programming skills obviously needed for the degree. Nationally, there have been a number of approaches to introducing computer science and developing programming concepts that start with simpler languages, focus on more important concepts than details of a complex industrial programming language, and incorporate more exciting examples. The department is encouraged to consider adopting such an approach to enable more students to succeed in the program and to make a first course that will be more appealing to students who are not yet sure of their interest in computing.

Discussion by degree: BA in Applied Computing

The BA in Applied Computing is a new degree, started in 2007, that combines a sound core of studies in computing with an organized set of studies (a minor) in a secondary area. This is an exciting new direction that is intended to give the student the ability to bring computing skills and knowledge into employment in the other area, meeting a need that has been identified in the region. It is probably too early to give much review of the program, but students reported being happy for the opportunity to develop this kind of computing background.

The prerequisites for the BA degree are identical to those for the BS degree except that the second calculus course is omitted. The department is encouraged to consider the BA prerequisites more carefully to determine if other prerequisites may be more appropriate for the BA degree. In particular, it is worth considering if there is a way to ensure the necessary problem-solving and abstract thinking skills without requiring a calculus prerequisite.

The structure of the degree includes prerequisite courses, a core of computing fundamentals, and a set of more advanced electives, combined with a minor or concentration in another field. The prerequisites and core are a subset of those for the BS degree, and the electives focus in a more applied direction. The primary challenge in the BA degree at this point is the small number of

appropriate minors that are available. However, the campus STEM initiative offers exciting opportunities to bring additional minors and unique concentrations to the degree.

Finally, the review group notes that the BA degree in particular, and the overall CSS program in general, suffer from a lack of external promotion that goes beyond the current excellent community college outreach. An increased promotion effort for the BA degree, backed by investments for advertising and staffing, seems to be needed. In particular, the program needs to make real efforts to develop "branding" for the CSS degrees as well as the UWB campus as a whole.

Discussion by degree: MS in Computing and Software Systems

The MS degree in Computing and Software Systems was approved in 2002 but has not been implemented because of budget constraints. The approved degree emphasizes the development of high-level computing skills that are appropriate for persons who are working or will work in application areas. The CSS program is eager to implement this degree. The faculty and staff believe that there is a sufficient sustainable student demand for the degree, that it would enlarge student enrollment and lead to additional faculty lines that could benefit the entire program, that it could provide tutors and TAs for higher-level classes, that it would provide more opportunities for students to work with the faculty on research, and that it would enhance the CSS academic reputation both on campus and off. They are particularly concerned because of the possibility of sunsetting the existing degree approval.

The review group understands the eagerness of the CSS program for the MS degree, but our analysis of the costs and benefits suggests that the costs (in both money and effort) may be higher than the program expects and the benefits may be lower. The part-time, already-employed student is not likely to do research for the degree or to be willing to do TA or tutoring work, for example. The BA degree and the campus STEM initiative seem to offer better opportunities to achieve many of these same goals. There do not seem to be sufficient resources to add the launch of the MS degree to these activities.

We believe that the MS degree may well be an appropriate future step in the overall development of the CSS program, but it makes more sense to focus now on the BA degree and the STEM initiative. At some later date it may make sense to develop a MS degree program, but we cannot say when that may be. We also cannot say whether the original orientation of the planned degree will continue to be the best approach at that time. We thus suggest that the degree be allowed to sunset now and that the department should devote its energies to strengthening the BS and BA degrees and driving the STEM initiative, but believe that it may be appropriate for the CSS program to reconsider a possible MS degree program sometime in the future.

Campus-Wide Initiative: Move to Four-Year Format

Having freshmen and sophomores at UWB offers opportunities to the CSS program, opportunities that we believe could help it achieve its larger goals of growth, diversification, a broader and deeper pool of potential students, better integration into the

academic community on campus, and (relative) freedom from short-term enrollment pressures.
One obvious benefit is the larger number of potential – and potentially better-prepared – applicants, along with the opportunity to attract lower-division students into the program. A related and complementary opportunity is to reach broader segments of the student population:

- To attract students into one of the CSS majors
- To offer breadth in computational and technology areas to students in other programs
- To offer service or survey classes to students desiring introductory-level exposure to concepts related to computation and technology

We encourage the program to explore these possibilities; service courses especially can be a good way to "even out" enrollments and leave the program less exposed to fluctuations in the number of students enrolling in a CSS major. Exploring cross-disciplinary offerings like minors or jointly offered project classes serves the same end. We should point out that this integration takes effort, planning, and coordination with other programs. For example, offering a "computer fluency" course to lower-division students only works if the course fits well into the typical student's degree program, and is well publicized and accepted by the advising staff campus-wide. The emerging concept of "computational thinking" seems to offer some excellent opportunities to create innovative courses that merge computing and other fields. To offer some examples, a course in "Computational Thinking in the Social Sciences" could talk about computational modeling and statistics; "Computational Thinking in the Arts" could talk about digital media and computing techniques such as CAD for sculpture; and "Computational Thinking in the Sciences" could be a keystone for the new STEM areas. Establishing a curriculum for lower-division students that naturally includes computing-related concepts and coursework is not an easy task, but one that we believe is fully in keeping with the program's long-term aspirations.

Campus-Wide Initiative: The STEM Initiative

The campus is initiating a new effort to develop programs in Science, Technology, Engineering and Mathematics (STEM) fields. As the only established STEM program at UW Bothell, CSS has an opportunity to greatly benefit from the success of the STEM initiative. It will help eliminate the academic isolation felt by the CSS faculty, and provide a pool of students interested in CSS courses, as well as many more appropriate minors for BA students. It is crucial that CSS fully participate in the STEM initiative. Along with Mathematics, Computer Science is the most central of all STEM fields. Nearly all work in science, technology, and engineering today incorporates computing as a primary component; furthermore, computer science teaches problem solving and

abstract thinking skills that are important for all STEM fields. Because of the unique process in which CSS existed before other STEM fields at UW Bothell (the opposite of nearly all other institutions in which computing departments formed after other STEM departments were already long established), UW Bothell has an opportunity to create STEM programs that are designed from the ground up to reflect the modern realities of science, technology, and engineering. Perhaps the most important of these is an emphasis on computational science and the central role of computing in all of these fields.

The review committee encourages the CSS faculty to work closely with the administration and other faculty in creating the STEM initiative. CSS should be leading this effort, and has an excellent opportunity to help create innovative and successful STEM programs because of its multidisciplinary faculty. We hope the STEM initiative will provide new opportunities to develop courses that integrate computing with other science disciplines (e.g., computational chemistry, bioinformatics, climate modeling, etc.). It is important that CSS contributions to STEM do not take too much away from their existing core programs, however. We hope additional and appropriate resources, including faculty positions, can be made available to CSS to reflect the importance of continually vibrant computing programs to the success of the STEM initiative.

Closing Summary: Recommended Strategic and Immediate Actions

In closing, we first want to reinforce our sense that CSS is an excellent program that is serving the audience it was intended to serve and is offering both a healthy BS and a highly promising BA degree. We recommend three main strategic actions to take advantage of and build on these strengths:

- Continue the BS and BA degree
- Improve the brand and marketing of the BA degree
- Become central to the STEM initiative

In addition, we believe that there are several immediate actions that if taken would greatly strengthen CSS in the short term:

- Recognize the depth, breadth, and value of the staff contribution in recruiting, and support this activity with part-time student-hourly funding
- Expand the marketing effort and create a distinctive CSS BA marketing program
- Resolve the issues with UWB Admissions

Appendices

Charge letter

Agenda

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April 24, 2008

University of Washington-Bothell Computing & Software Systems Review Committee
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Steven John Hanks, Professor, UW Tacoma Computing & Software Systems
Alan T. Wood, Professor, UW Bothell Interdisciplinary Arts and Sciences
Steve Cunningham, Professor Emeritus, Department of Computer Science, California State University Stanislaus
David Evans, Associate Professor, Department of Computer Science, University of Virginia

Dear Review Committee Members:

Thank you once again for agreeing to serve on the committee to review the University of Washington-Bothell (UWB) Computing & Software Systems (CSS) Program and its degree programs: the existing Bachelor of Science (B.S.) and Bachelor of Arts (B.A.), and the previously approved Master of Science (M.S.). Following upon the meeting of the review committee with the administrators involved with this review, we are writing to present you with a detailed charge for the review process.

First, the specific action needed at the end of your review is a recommendation regarding the continuation of the existing degree programs offered by the unit. The possible recommendations from your committee range from suspension of student entry into the unit's degree programs, to a recommendation for continuing status with a subsequent review in 10 years. Shorter terms can be recommended if you deem it appropriate. Equally important to this status recommendation, your review can offer the unit and the administration an independent assessment of the "health" of the unit and advice on how it can be improved.

Second, we ask you to review the M.S. degree proposal and make a recommendation regarding the implementation of the plan as described. If you judge that it should be implemented with modifications, please describe those modifications. Beyond an assessment of the academic quality of the program, please evaluate the relevance of this

program from a national perspective in relation to the future of the field and employer need, as well as the intellectual sustainability of the program in light of the available resources described in the proposal. We ask that Professors Cunningham and Evans each submit a separate letter that specifically comments on the M.S. program. This letter will be used as part of the request to the Washington State Higher Education Coordinating Board (HECB) to extend the sunset provision for this previously approved program.

In our experience, the review is most likely to be successful if the necessary tasks are divided among the committee members. We suggest that the external reviewers be relied upon as content experts with regard to the degree programs, while providing a national perspective on the general quality of the program. They are also likely to be able to comment on recent developments in the field and their incorporation into the unit. The internal members may conduct assessments and interviews with stakeholders on campus in advance of the site visit, if you view that to be desirable. We encourage you to communicate with Professor Charles Jackels, Director of the CSS Program, so that he knows your interests and expectations, particularly for the site visit.

The site visit on **May 22-23, 2008**, will include meetings with administrators, faculty, students, and key staff. The site visit will culminate with an exit interview, divided into two portions. The Associate Dean of the Graduate School, the Vice Chancellor for Academic Affairs from the UWB Chancellor's Office, the Associate Dean from the Office of Undergraduate Academic Affairs, and the Executive Vice Provost will participate in both portions. The first portion of the exit interview will include the program director and other faculty he may invite, while the second portion, an executive session, will include only the review committee and administrators. We will request your preliminary recommendation regarding the continuance of the degree programs early in the second portion of the exit interview. We will also ask you to describe your plan for completing the written report in a timely manner.

We request that your committee submit its written report within six weeks of the site visit at the latest. Specifically, the written report is due **July 7, 2008**. We will then request a response by the CSS Program within a month. When the response is available, the internal members of the committee will be asked to attend a meeting of the Graduate School Council to present review committee findings and to comment on the program's subsequent response to the report.

Please note that upon completion of program reviews, the primary review documents become public and are placed on the UW accreditation web site. These documents include the self-study, the review committee report, the unit's response to the report, and a Graduate School letter to the Provost describing the Graduate School Council's recommendations on the review.

The most important objective of your review is an assessment of the academic and educational quality of the program. Important questions include:

1) Are they doing what they should be doing?
2) Are they doing it well?
3) How can they do things better?
4) How could the University assist them?

In deciding how to prioritize issues, we suggest considering how important each one is in relation to scholarship or education. Listed below are several issues you may wish to consider. This list is not intended to restrict your review. You should consider all issues that you deem important.

General and Faculty

1. What is the general quality of the unit's degree programs and the teaching faculty? How does the reputation of the program compare with its peers regionally and nationally?
2. Is the program's system of governance working effectively, especially with regard to the unit's many committees? Does the curricular governance process work well in relation to campus-wide and university-wide oversight?
3. Is the program effectively nurturing its future leaders?
4. How can the unit best support faculty scholarly activity, given the service demands faculty face? In general, how well does the program respond to the pressures surrounding enrollment mandates, growth, faculty service loads, and research?
5. Are the program's community partnerships working well, and how might the program make best use of its newly formed Community Advisory Board?
6. Do current student transfer agreements work well? Are students coming through the community and technical college system adequately prepared for the unit's degree programs? Does the unit have a strong relationship with Cascadia Community College?
7. How does the focus of the unit's degree programs position it with regard to the future growth of STEM programs at UWB?
8. Is the unit effectively adapting to UWB as a four-year campus?
9. How can the unit best succeed in fostering diversity in faculty, students, and staff?
10. How does the program envision the future relationship to the UW Seattle and UW Tacoma computing programs?
11. How might the unit address concerns about the competitiveness of faculty salary?
12. How can the unit best navigate the challenges it outlines throughout the self-study: providing a range of programs with limited resources; insufficient faculty breadth and misalignment of faculty expertise with program focus; a reliance on lecturers; low staffing levels; a limited ability to serve part-time, evening, and lower-division students: and the lack of a graduate-level degree?
13. Does the unit have a development plan?
14. Do research grants form an appropriate proportion of unit funding, as described on page 26 of the self-study?
15. Are staff members appropriately valued by the unit? Does the current staff advising of students work well?

Existing Degree Programs (B.S., B.A.)

1) Have the learning objectives for each degree program been articulated and are they optimal?
2) Have the degree programs met or exceeded students' expectations, specifically with regard to future career opportunities? Is the unit effectively managing admissions to its programs?
3) What is the quality of applicants to each of the degree programs?
4) How might the programs be best structured to serve part-time students?
5) Are the retention and attrition rates in each of the unit's degree programs appropriate? Can they be improved?
6) Does the existing student peer mentoring work well?
7) Are students satisfied with the capstone cooperative education courses and with their opportunity to engage in undergraduate research?
8) How might the lack of residential space on campus impact the future of the unit's programs?

Proposed Master of Science (M.S.) Degree Program

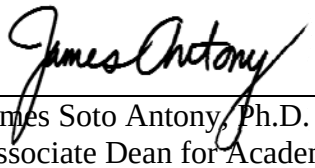
1) Should the M.S. degree be implemented as described?
2) Will current or future resources support the growth needed to implement the M.S. curriculum?
3) What impact would the M.S. degree have on the unit's support for its other programs, and how might the unit best balance investment in its graduate versus undergraduate programs?
4) Is there sufficient student demand to justify investing new resources in the M.S. program?

Resources

1) Obtaining new resources for programs is always a challenge for all universities. Assuming that we must work within the current budget, has the current funding been used optimally? Would the program benefit from more strategic prioritization of goals vis-à-vis use of financial resources?
2) If limited new state resources were available, what would be the best strategic investment to meet the program's current goals and to position this unit to be at the cutting edge of its discipline in the future?
3) As a result of your review, have you identified any features of the program that could, and should, be leveraged in ways that might attract outside investment (e.g., from granting agencies, foundations, or individual donors)? If so, what would be your specific recommendations?
4) What support would be needed for the unit to admit students who are promising applicants, but have not yet reached a level where they would normally be admitted, and to bring them up to the level where they might succeed in the program?

Thank you again for your time and effort. Please do not hesitate to contact David Canfield-Budde, Academic Program Specialist, at 206-685-6664 or dacan@u.washington.edu if you have questions during the review process.

Sincerely yours,



Suzanne T. Ortega	James Soto Antony, Ph.D.
Vice Provost and Dean and Dean	Associate Dean for Academic Programs

cc: Douglas J. Wadden, Executive Vice Provost, Office of the Provost
Susan E. Jeffords, Interim Vice Chancellor for Academic Affairs, UW Bothell Chancellor's Office
John D. Sahr, Associate Dean, Undergraduate Academic Affairs
Charles Jackels, Director, Computing & Software Systems
David Canfield-Budde, Academic Program Specialist, The Graduate School
David Brown, President, GPSS

UNIVERSITY OF WASHINGTON
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Computing & Software Systems Program Review
University of Washington Bothell
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Thursday, May 22, UW1 370

9:00 – 10:30 Review Committee Executive Session/Breakfast in site visit room

10:30 – 10:45 BREAK

10:45 – 11:45 **Charles Jackels,** Director, Computing & Software Systems

11:45 – 12:00 BREAK

12:00 – 1:00 **Lunch with CSS Tenure-Track Faculty [6]**

1:00 – 1:30 BREAK

1:30 – 2:30 **Lecturers as group [4]**

2:30 – 2:45 **Carol Zander**, Senior Lecturer, CSS

2:45 – 3:15 **Industry Stakeholders**
Dean Margell, General Software, Inc. (by phone)
Philip Newcomb, The Sorfware Revolution, Inc. (by phone)
Robert Stone, Amaze Entertainment (by phone)

3:15 – 3:30 **Walk to room UW2-040**

Room UW2-040
3:30 – 4:00 **Meeting with non-major students in class** (CSS 161 Fundamentals of Computing, 3:30-5:35pm).

4:00 – 4:15 **Walk to room UW1-370**

Room UW1-370
4:15 – 5:15 **Individual Meetings with Faculty** (by appointment)
4:15 – 4:30 **Kelvin Sung**, Associate Professor, CSS
4:30 – 4:45 **Mike Stiber**, Associate Professor, CSS
4:45 – 5:00 **Bill Erdly**, Associate Professor, CSS
5:00 – 5:15 **Mike Panitz**, Cascadia Community College

5:15 – 5:20 **Walk to room UW1-320**

Room UW1-320
5:20 – 6:15 **Undergraduate Students (BS & BA students together) for pizza**

Thursday, May 22
7:00pm Review Committee working dinner:
Third Floor Fish Café (205 Lake Street South, Kirkland, 98033; 425-822-3553)

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Friday, May 23, **UW1 370**

9:00 – 9:15 **Frank Cioch**, Professor, CSS

9:15 – 9:45 **Lab Tour**

9:45 – 10:15 **CSS Staff**

10:15 – 10:45 **David Notkin**, Professor, UW Seattle Computer Science & Engineering [by phone]

10:45 – 11:00 **BREAK**

11:00 – 11:30 **Transfers, Admissions, and Recruiting: UWB and CSS Perspective**
Dina Meske, CSS senior advisor
Clark Olson, CSS admissions committee chair
Jill Orcutt, UWB Director of Admissions

11:30 – 12:00 **Transfers, Admissions, and Recruiting: Community College Perspective**
Paul Bladek, Division Chair, Edmonds Community College (in person)
Joyce Fagel, Advisor, Shoreline Community College (phone)
Judy Gage, Advisor, North Seattle Community College (phone)
Barbara Goldner, Division Chair, North Seattle Community College (in person)
William Iverson, Division Chair, Bellevue Community College (phone)
Phyllis Topham, Division Chair, Shoreline Community College
Robert White, faculty member, Everett Community College (in person)

12:00 – 2:00pm **Review Committee executive session/lunch**
(Boxed lunches catered to room UW1 370)

2:00 – 2:30 **BREAK**

2:30 – 3:30 **Exit Interview** (**UW1 370)**
James Antony, Associate Dean for Academic Programs, The Graduate School
Douglas J. Wadden, Executive Vice Provost, Office of the Provost
Kenyon S. Chan, Chancellor, UW Bothell
Susan E. Jeffords, Interim Vice Chancellor for Academic Affairs, UW Bothell (by phone)
John D. Sahr, Associate Dean, Undergraduate Academic Affairs
Charles Jackels, Director, Computing & Software Systems
Bill Erdly, Associate Director, Computing & Software Systems
David Canfield-Budde, Academic Program Specialist, The Graduate School

3:30 – 4:30 **Exit Interview** (**UW1 370**)
As above; no program representatives.

4:30 – 5:00 **Review Committee Debriefing Session (review committee only)**