UNIVERSITY OF WASHINGTON

OFFICE OF THE PRESIDENT

August 14, 2009

Vice Chancellor Susan Jeffords
University of Washington, Bothell
Box 358522

Dear Susan:

Based upon the recommendations of the Executive Council on General Faculty Organization, the Faculty Council on Tri-Campus Policy has recommended approval of a Bachelor of Science in Electrical Engineering degree. A copy of the proposal is attached.

I am writing to inform you that the Science and Technology program is authorized to offer this option beginning winter quarter 2010 and thereafter.

The new requirements should be incorporated in printed statements and in individual department websites as soon as possible. The *General Catalog* website will be updated accordingly by the Registrar's Office.

Sincerely yours,

Mark A. Emmert
President

Enclosure

cc: Ms. Annette Anderson (with enclosure)
Mr. Robert Corbett (with enclosure)
Dr. Deborah H. Wiegand (with enclosure)
Todd Mildon, J.D. (with enclosure BEE-20090401)

301 Gerberding Hall • Box 351230 • Seattle, Washington 98195-1230 • 206-543-5010 • FAX: 206-616-1784

UNIVERSITY OF WASHINGTON

CREATING AND CHANGING UNDERGRADUATE ACADEMIC PROGRAMS

APR 0 9 2009

OFFICE USE ONLY

Control # B EE - 220401

After college/school review, send a signed original and 8 copies to FCAS, Box 355850.

For information about when and how to use this form: http://depts.washington.edu/uwcr/1503instructions.pdf

College	Department or Unit	Date
University of Washington Bothell	Science and Technology	4/1/09

New Programs

- ☐ Leading to a Bachelor of Science in Electrical Engineering degree.
- ☐ Leading to a Bachelor of _____ degree with a major in _____.
- ☐ Leading to a _____ Option within the existing major in _____.
- ☐ Leading to a minor in _____.

Changes to Existing Programs

- ☐ New Admission Requirements for the Major in _____ within the Bachelor of _____.
- ☐ Revised Admission Requirements for the Major in _____ within the Bachelor of _____.
- ☐ Revised Program Requirements for the Major in _____ within the Bachelor of _____.
- ☐ Revised Requirements for the Option in _____ within the major in _____.
- ☐ Revised Requirements for the Minor in _____.

Other Changes

- ☐ Change name of program from _____ to _____.
- ☐ New or Revised Continuation Policy for _____.
- ☐ Eliminate program in _____.

Proposed Effective Date:

Quarter: ☐ Autumn ☑ Winter ☐ Spring ☐ Summer **Year:** 20 10

Contact Person	Contact's Phone	Contact's Email
Arnold S. Berger	425 352 5463	aberger@u.washington.edu

EXPLANATION OF AND RATIONALE FOR PROPOSED CHANGE

For new programs, please include any relevant supporting documentation such as student learning outcomes, projected enrollments, letters of support and departmental handouts. *(Use additional pages if necessary).*

Please see the accompanying proposal for all relevant supporting documentation.

CATALOG COPY

Catalogue Copy as currently written. Include only sections/paragraphs that would be changed if you request is approved. Please cross out or otherwise highlight any deletions.

A degree program leading to a Bachelor of Science degree in Electrical Engineering. This is a hybrid program with courses taken both on site and on-line. The program is being designed from the outset to meet the requirements of ABET accreditation.

PROPOSED CATALOG COPY

Reflecting requested changes (Include exact wording as you wish it to be shown in the printed catalog. Please underline or otherwise highlight any additions. If needed, attach a separate, expanded version of the changes that might appear in department publications)

SIGNATURES (required)

Chair/Program Director	Date 3/31/09
Dean	Date 5/20/09
College Committee Charles F Jackson, Vice Chair GFO	Date 4/1/09
Faculty Council on Academic Standards Charles F Jackson, Vice Chair, GFO	Date 5/13/09

UoW 1503 (12/05) REVERSE

Application to the Higher Education Coordinating Board for a New Degree

Bachelor of Science in Electrical Engineering

University of Washington Bothell

March 30, 2009

FORM 2

COVER SHEET
NEW DEGREE PROGRAM PROPOSAL

PROGRAM INFORMATION

Program Name: Electrical Engineering

Institution Name: University of Washington, Bothell

Degree Granting Unit: University of Washington, Bothell

Degree: BS **Level:** Bachelor **Type:** Arts

Major: Computing and Software Systems **CIP Code:** 14

Minor: NA

Concentration(s): None

Proposed Start Date: Autumn Quarter, 2009

Projected Enrollment (FTE) in Year One: 20 FTE **At Full Enrollment by Year:** 2015: 100 FTE

Proposed New Funding: YES

Funding Source: X State FTE __ Self Support __ Other

Mode of Delivery

X Single Campus Delivery	(location)	University of Washington, Bothell
__ Off-site	(locations)	_____
_X Distance Learning	(format)	_On line and via in-home laboratory apparatus

Contact Information (Academic Department Representative)

Name: Arnold S. Berger, Ph. D.
Title: Associate Program Director, Computing & Software Systems
Address: University of Washington-Bothell
18115 Campus Way N.E.
Box 358534
Bothell, WA 98011-8246

Telephone: (425) 352-5463 ; (425) 352-5279 (Dept Office)
FAX: (425) 352-5216\
E-mail: aberger@u.washington.edu

5.0 Detailed Program Description and Curriculum

This degree program is designed to facilitate early planning for high school seniors, community/technical college students and transfer students from other four-year institutions. The program prerequisites are the same as prerequisites for admission to most Electrical Engineering degree programs.

5.1 Program Prerequisites

High School Core Subject Requirements – must be completed before admission to the University of Washington
English Composition (3-5 credits) – this may include composition, or two writing "W" intensive courses
Mathematics (15 credits) - Calculus with Analytical Geometry levels 1 – 3
Physics (10 credits) – Mechanics, Electromagnetism & Oscillatory Motion
Chemistry (5 credits) – General Chemistry

Students must earn a 2.0 minimum in each EE prerequisite course to be eligible for admission. The format of the distance learning curriculum is built around a PowerPoint lecture with voice over from the instructor. These lectures, coupled with homework, text book readings, tests and lab assignments (available via specially built lab kits for in-home lab experiments) will form the basic structure of the EE curriculum. In addition to these tools, students will have conversations via blackboard and email with the instructor and fellow classmates. Continued course development, based on student success and feedback from both student and instructor, will serve as a driving motivator for continued improvement of the online curriculum and course delivery systems.

5.2 Program/Curriculum Description (Form 4 – Required Coursework)

The UW Bothell Electrical Engineering Degree will require completion of a set of courses that emphasize Electrical Engineering fundamentals. Included in this list of core classes, students will be required to complete a capstone project. The capstone project will be a team oriented design project. It will reintroduce concepts learned from previous courses in engineering topics including design impact within the context of business, society and global issues.

Twenty-five credits of elective courses within the electrical engineering curriculum will be required from all students. Students will be able to choose their electrical engineering electives from a broad range of EE topics, which will include analog circuits, biomedical instrumentation, sensors and devices, digital circuits, signal processing, communications, controls, and other relevant topics.

In addition to these EE courses, students will be required to complete 10 credits of coursework designed to educate the student in both business or program management, and the societal impact of engineering design decisions. This breadth requirement will fulfill a unique aspect of the UW Bothell EE education; to distinguish, educate and prepare students for today's modern workforce.

5.2.1 Overview

The UW Bothell Electrical Engineering Degree prepares students for professional and graduate level work in the application of electricity, electronics, and electromagnetism. It is designed to be responsive to the call for reform of engineering education by the National Academy of Engineering, National Science Foundation, and the business community, drawing on the UW Bothell mission to provide innovative, accessible, and cross-disciplinary education. The curriculum assumes the following form;

Mission of UW Bothell Electrical Engineering: To provide students a rigorous learning experience in the fundamentals and applications of electricity, electronics, and electromagnetism in a multidisciplinary learning environment stressing design, teamwork, ethics, entrepreneurship, and civic responsibility.

UW Bothell Electrical Engineering Educational Objectives and Learning Outcomes: UW Bothell's EE learning outcomes are geared to preparing students for lifelong learning as engineering professionals. The educational objectives are as follows:

1. Prepare graduates for professional careers and graduate study in electrical engineering through a curriculum that builds mastery in mathematics, science, engineering design and analysis, and professional ethics.
2. Prepare graduates to use state-of-the art technologies, engineering tools, experiment design, and problem-solving strategies relevant to professional and societal needs.
3. Prepare graduates to work productively in a diverse global environment as innovators and entrepreneurs in accordance with ethical norms and with sensitivity to civic responsibility, social justice, and environmental stewardship.
4. Prepare graduates to communicate clearly and work effectively in teams.

Learning outcomes are based on those prescribed by ABET and include the following:

1. Ability to apply knowledge of mathematics, science, and engineering.
2. Ability to design and conduct experiments, as well as to analyze and interpret data.
3. Ability to design a system, component, or process to meet desired needs.
4. Ability to function on multidisciplinary teams.
5. Ability to identify, formulate, and solve engineering problems.
6. Understanding of professional and ethical responsibility.
7. Ability to communicate effectively.
8. The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
9. Recognition of the need for, and an ability to engage in life-long learning.
10. Knowledge of contemporary issues.
11. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

The EE degree will require completion of a set of courses that emphasize Electrical Engineering fundamentals. Included in this list of core classes, students will be required to complete a capstone project. The capstone project will be a team oriented design project. It will reintroduce

concepts learned from previous courses in engineering topics including design impact within the context of business, society and global issues.

Twenty-five credits of elective courses within the electrical engineering curriculum will be required from all students. Students will be able to choose their electrical engineering electives from a broad range of EE topics, which will include analog circuits, biomedical instrumentation, sensors and devices, digital circuits, signal processing, communications, controls, and other relevant topics.

In addition to these EE courses, students will be required to complete 10 credits of coursework designed to educate the student in both business or program management, and the societal impact of engineering design decisions. This breadth requirement will fulfill a unique aspect of the UWB EE education; to distinguish, educate and prepare students for today's modern workforce. Many of the brief course descriptions are the same as those for the corresponding courses in the EE program at UW Seattle. This is understandable since the core curriculum is derived from the UWS program.

5.3 Course descriptions

5.3.1 Required Core Courses: 35 credits

The course designations shown in parentheses refer to existing courses from which these new courses may be derived. Thus, for example, there may be a UW Bothell course designator, BEE 215, which would likely be leveraged from the existing UW Seattle EE course, EE 215. However, by using the designator, BEE2XX, we are reserving the right to modify course numbers and syllabi to better suit the needs of this program.

- BEE 2XX Introduction to Circuits and Systems (EE 215)
- BEE 2XX AC Circuit Theory (EE233)
- BEE 2XX Analog Signals and Systems (EE 235)
- BEE 2XX Digital Circuits and Computer Organization (EE 271)
- BEE 3XX Solid State Devices I (EE 331)
- BEE 3XX Solid State Devices II (EE 332)
- BEE 4XX Capstone Design Course (EE 495)

5.3.2 Representative sample of EE Elective Courses (25 credits required)

- BEE 3XX Digital Signals and Systems (EE 341)
- BEE 3XX Applied Electromagnetics (EE 361)
- BEE 4XX Introduction to Digital Imaging Systems (EE 440)
- BEE 4XX Medical Instrumentation (EE 436)
- BEE 4XX Computer Design and Organization (EE 471)
- BEE 4XX Digital Signals and Filtering (EE 442)
- BEE 4XX Introduction to Digital Imaging Systems (EE 440)
- BEE 4XX Microcomputer Systems (EE 472)

5.3.3 Engineering Topics (10 credits)

The Engineering Topics courses are designed to introduce students to the large scale concepts are inherent within today's more global approach to engineering. Engineering Topics will introduce subjects such as project management, public policy impact, renewable and elegant design to a student's education. Students are provided with a list of classes judged by EE faculty to meet this requirement.

5.3.3.1 Business Management Concepts for Engineers

Students must choose one of the following 5 credit courses:

- BEE 3XX Management Principles (CSS 350)
- BEE 3XX The Business of Engineering (CSS 371)
- BEE 4XX Project Management for Engineers
- BEE XXX Economic and Management of Technological Innovation (New Course)
- BEE XXX Competitive Engineering
- BEE XXX Entrepreneurship Workshop
-

5.3.3.2 Society and Societal Impact for Engineers

Students must choose one of the following 5 credit courses:

- BEE 2XX Engineering and Society (CSS 211)
- BEE 4XX Engineering Technology and Public Policy (CIS 411)
- BEE 3XX Science, Technology and Society (BIS 307)

5.3.4 Engineering and Science Foundation Coursework (45 credits)

- Introduction to Differential Equations (New course)
- Matrix Algebra with Applications (New course)
- Advanced Multivariable Calculus (New course)
- Math 235 Statistics in Engineering and Science (Available from Cascadia Community College, collocated with UWB)
- BCUSP 151 Waves
- BCUSP 135 Research Writing
- CSS 301 Technical Writing
- CSS 161 Fundamentals of Computing
- CSS 162 Programming Methodologies

5.3.5 University of Washington Area of Knowledge Requirements (30 credits)

The University of Washington Bothell has established minimum general education requirements for baccalaureate degrees. Included in this requirement are the following:

- 15 credits of Visual, Literary and Performing Arts (VLPA)
- 15 credits of Individuals and Societies (I&S)

5.3.6 General Electives (2 – 8 credits)

If needed, enough additional credits to satisfy the 180 credit requirement

5.4 Graduation Requirements

In order to graduate with a degree in EE from the UW Bothell EE department, students are required to complete the above stated requirements (totaling 180 credits) with a cumulative GPA of 2.0 or higher. Students must earn a 2.0 or higher in all required courses for them to count towards the EE degree requirements. Only 10 credits of 200 level EE electives may count towards the EE elective requirement. In addition, students must meet all University of Washington Bothell graduation requirements.

6.0 Infrastructure Requirements

The new EE program has available to it the same infrastructure resources that are provided to all UW Bothell programs. These resources include, Counseling Services, Disabled Student Services, Library and Media Center, Quantitative Skills Center, and a Writing Center. The technological resources include the Information Systems department, the Campus Media Center, and electronic podium classroom technology.

Also, as the other S&T programs begin to come online in tandem with the EE program, other support services, focused on the needs of science and technology, will be developed as well. For example, a new science and technology building, UW3, is currently in the planning stages and is expected to be completed by 2015. This new building is slated to provide expanded laboratory space that EE elective subjects such as power systems and antenna design, could take advantage of.

For their computing needs, the EE program will be able to leverage the extensive facilities that are already in place to support the existing Computing and Software Systems Program (CSS). This would be an excellent use of existing facilities and save considerable financial resources by removing the need to duplicate existing facilities. CSS has two drop-in labs, five research labs as described below, and a professional staff position for program technical support. In addition there are four computer classrooms available for CSS use. These specialized labs and personnel will be leveraged to meet requirements of our new degree option.

6.1 Bridge program

According to Professor Gray Kochar-Lindgren, director of the Center for University Studies and Programs (CUSP), the University of Washington Bothell will be starting a bridge program beginning in September, 2009. The objective of this program will be to help under-prepared students make the transition to college-level coursework. The program will run four days per week from 9am to 4pm. It will provide intensive concentration in areas such as university culture and resources, study skills, writing and quantitative skills, as well as co-curricular activities. Also, the program will continue as a follow-up throughout the year. College credits will be given, although the exact determination awaits faculty approval.

6.2 Counseling Services

UNIVERSITY CAMPUSES UNDERGRADUATE PROGRAM REVIEW PROCEDURES**

CHECKLIST

Title of Proposal: Bachelor of Science in Electrical Engineering degree (BEE-20090401)

Proposed by (unit name): UW Bothell

Originating Campus:

__UW, Seattle

X UW, Bothell

___UW, Tacoma

I. **Phase I. Developed Proposal Review** (to be completed by Originating Campus' Academic Program Review body)

A. Review Completed by: (list name of program review body) Jennifer, can you please add the dates? I did not receive a checklist in the email.

Chaired by:

04/04/2009 Date proposal received by originating campus's review body

04/09/2009 Date proposal sent to University Registrar

04/10/2009 Date proposal posted & email sent to standard notification list

05/13/2009 Date of originating campus's curriculum body approval
(Note: this date must be 15 business days or more following date of posting)

B. ___3__ Number of comments received. Attach the comments and a summary of the consideration and responses thereof : (1-2 paragraphs)

II. **Phase II. Final Proposal Review** (to be completed by FCTCP)

A. Review Completed by:
__X_ FCTCP subcommittee
___ FCTCP full council
Chaired by: Janet Primomo, RN, PhD

5/26/09 Date request for review received from University Registrar
5/31/09 Date of FCTCP report

B. Review (attached)

YES NO

_x__ ___ Was notice of proposal posted on UW Website for 15 business days?

__x_ ___ Was notice of proposal sent to standard mailing list 15 business days in advance of academic program review?

__x_ ___ Were comments received by academic program review body?

__x_ ___ Was response to comments appropriate? (explain, if necessary)

__x_ ___ Was final proposal reviewed by FCTCP within 14 days of receipt?

__x_ ___ Was there adherence to the University Campuses Undergraduate Program Review Process? (explain, if necessary)

C. Recommendation

The Program Review sub-committee of the FCTCP reviewed this proposal for a Bachelor of Bachelor of Science in Electrical Engineering degree (BEE-20090401) at UW Bothell. We carefully examined the extensive comments by Professor Leung Tsang, the chair of EE at UWS, and Professor Brad Holt, as well as the UWB response to the comments. The explanations provided were very helpful, and the response by UWB was thorough and complete. Therefore, the Program Review sub-committee of the FCTCP affirm that the proper procedures were followed. The FCTCP is pleased to have the Registrar forward the final proposal. Thank you. Janet Primomo, Chair, FCTCP

__x_ Forward for final approval

___ Forward to Provost because of University issues (Explain)

___ Return to campus council because of insufficient review (Explain).

**Endorsed by Faculty Senate Executive Committee, 1/10/05, modified 1/31/06; These procedures apply to new undergraduate degrees, majors, minors (and certificates) and substantive changes to same

Bothell: Bachelor of Science in Electrical Engineering degree (BEE-20090401)

Tri-Campus Review Comments:

DONALD J. JANSSEN

Please correct the numbers in the enrollment and graduation headcount table at the end of the proposal. Also, please indicate the number of credits for each of the required courses. Section 5.3.2 is difficult to follow.

DAVID STEVEN GOLDSTEIN

It should be made clear that the Quantitative Skills Center (see sec. 6.6) and the Writing Center (see sec. 6.7) would need funding for additional tutors and training to support students in electrical engineering.

BRADLEY HOLT

- When I add up the degree requirements I get more than 180 credits?

- For ABET you need to check the EE requirements (example, probability).

- Is this a distance learning degree or not. If it is it must follow the UW requirements for distance learning degrees. If it is not it must meet the UW residence requirements. Can the proposal indicate which courses are distance and which are not and when students would be taking the courses (a proposed schedule) I believe all of the existing UWB classes are on-site classes - are some of these going to be proposed as distance learning classes?

- Related to this is the proposal to have classes taught by SUNY count as UW classes. Is the proposal dependent on this? This may require class B legislation to change UW handbook.

- Will the students pay the additional EO course fee?

- Can they explain which courses have or are labs? The document make reference to the "Circuits Lab Requirement for the third year" but I can't find a 300 level course with Circuits in it.

- Similarly can the document indicate which courses (on site) will make use of the the Bothell Campus labs, library and other services and which courses are distance courses

and what student support will be available for them?

- How will off-site students take advantage of the software (Labview and other software). Can the UW license be extended to personal computers?

- The document says that some courses cannot be satisfied by simulation software but then "hopes" students can get experience in a number of ways? Or are these options going to be required?

- Team work is really going to be done via remote desktop and IM? How is such remote lab course going to be graded? Is the capstone design class going to be onsite (since it has a group seminar)? (again, a better description of which courses are onsite and which are distance would be helpful).

- There are no Engineering Topics courses listed for the degree

- Math 235 is listed as taught by Cascade Community College. Is this going to be transfer credits? I am not aware how it would be possible for UW students to be required to take courses at another institution to satisfy degree requirements.

- How does the curriculum satisfy the UW requirement writing requirements? (...no fewer than 12 credits of writing consisting of 5 credits of English Composition and 2 additional writing-intensive courses...)?

- Will transfer students be able to graduate in 2 years? The curriculum lists 5 200 level required courses and only requires three 300 level courses?. Can the proposal lay out the expect schedule for students (2 year and 4 year)?

- What electives are going to be offered the first group of students (given the limited size of the proposed faculty). Can the proposal map out the course offered starting in the fall for the next two years (or until the first student graduates?) to ensure the first students are going to be able to timely graduate and they can meet the expected graduation targets given the small size of the proposed faculty?

- What is the state of course approval given this is May and the curriculum starts in the fall?

LEUNG TSANG

I am Leung Tsang, Chair of the Department of Electrical Engineering, University of Washington, Seattle. I have discussed the Bothell EE program with the EE Executive Committee. I would like to provide the following review based on the input I collected.

With the projected growth of the population in Seattle and the Pacific Northwest, the UW Seattle EE Department sees an increased need for BSEE education in the state. We think it might be possible that UW Bothell can help to serve that need. We hope that the program will achieve as high a quality level as possible, in part because any problems it might have will inevitably affect the overall reputation of engineering at University of Washington.

Although the Bothell program stated that support letters have been requested from Mani Soma and Eve Riskin, both of whom are faculty in our EE Department, they told me that they each have explicitly declined the request. They have recommended that UW Bothell contact me. However, the Bothell program has not contacted me.

A good Electrical Engineering BS program requires hardware components and training students in laboratory skills for circuits, analog and digital electronics, radio frequency techniques, etc. The EE BS program culminates in capstone designs which can require extensive laboratory facilities. Teamwork is also expected in capstone designs for accreditation. Our EE Department must invest a tremendous amount of human and financial resources on maintaining and upgrading laboratory facilities. It is uncertain that distance learning can adequately provide such quality laboratory training and hardware design in a functional teamwork environment. This may affect the prospects for accreditation.

A possible solution would be to explore the idea of combining online with on-site instruction. This may be the key to building up a strong base in the UW-Bothell area. The on-site component could provide access to the necessary hardware facilities and address a number of other potential concerns.

An on-site component would ensure that the program is not simply competing with established national and global distance learning programs, but rather has a clear connection to students in the State of Washington, and in the region north of Seattle, thus better justifying the expenditure of state funds and other state resources. An on-site component can also serve as a backup plan if the proposed distance learning processes turn out to be ineffective
It would also provide incentives to staff some of the program with full time lecturers, ensuring instructional consistency and providing a critical mass in an intellectual community capable of developing the curriculum over time to suit the needs of its particular student body, instead of copying a curriculum from the UW-Seattle campus. . At the Seattle campus, our positive experience is with full time lecturers rather than with part-time lecturers.

Another concern is about finance. The financial structure of the program is believed to be self-supporting, which will require student fees far higher than UW-Seattle tuition. Will under-represented minority students be priced out of the program?

The EE admissions statistics in the Bothell report are somewhat misleading, as they capture a period when the UW-Seattle EE department moved to a new, higher, "High Demand" enrollment level, resulting in a temporary surge in admissions. We are presently maintaining that enrollment level.

Finally, it is apparent that the UW-Bothell program has not coordinated with the ExCEL program at UW-Seattle.

UNIVERSITY OF WASHINGTON

BOTHELL

Office of the General Faculty Organization

To: Faculty Council on Tri-Campus Policy

From: Charles Jackels, Chair, Executive Council of the General Faculty Organization, University of Washington Bothell

Date: 18 May 2009

Re: Executive Council Approval of the Proposed BA in Electrical Engineering

The Executive Council (EC) of the General Faculty Organization of University of Washington Bothell reviewed the responses from the tri-campus review of the proposal for a new BA in Electrical Engineering at its May 13 meeting. The EC has determined that the proposing faculty have duly considered and responded to the comments posted by faculty from across the three campuses during the tri-campus review period. A letter containing the responses is attached with the checklist. In consideration of the UW Handbook issues, the EC's endorsement ensures as in all cases that the curriculum and its courses remain in compliance with the UW Handbook, including areas pertaining to on-line learning. The EC furthermore voted to approve the Electrical Engineering proposal.

Please let me know if you need any additional information.

May 7, 2009

To: Professor Janet Primomo, Chair, UW Faculty Council on Tri-Campus Policy
Professor Charles Jackels, Chair, UWB Executive Committee

From: Arnold Berger, Chair UWB EE Degree Faculty Committee

Professors Primomo and Jackels:

This letter is a written as a formal response to the comments by UW faculty to the proposal for a new Bachelor of Science degree in Electrical Engineering to begin in Winter, 2010, pending approval by the Higher Education Coordinating Board. The faculty committee met on April 28, 2009 and again via e-mail on May 6, 2009 and approved this response to the comments that were posted to the Catalyst web site.

I've attached an appendix to this letter containing the entire text of the comments by Professor Tsang of the UWS EE Department. In my response to Professor Tsang's comments I will also extract his individual points and address them individually. I will also address the comments of d6423 and davidgs in this narrative, as well as make the appropriate changes to the proposal that they requested.

1- Comments by d6423: *Please correct the numbers in the enrollment and graduation headcount table at the end of the proposal. Also, please indicate the number of credits for each of the required courses. Section 5.3.2 is difficult to follow.*

The model in section 12.1 was corrected. In the original model, the graduation rate was based upon headcount rather than FTE count. The last row of the corrected table is now based upon the FTE count.

The introduction to the course requirements in section 5.3.2 now adds the sentence that all courses are 5 credits.

2- Comment by davidgs: *It should be made clear that the Quantitative Skills Center (see sec. 6.6) and the Writing Center (see sec. 6.7) would need funding for additional tutors and training to support students in electrical engineering.*

The comment is indeed an important observation. With the addition of the S&T unit and the stated goals to make these programs more inclusive, and representative of the population as a whole, it will be necessary to build-up the support services such as the QSC and Writing Center. However, exactly how the individual departments within S&T are "taxed" to help fund university-wide support services has yet to be decided.

We believe that it would be reasonable to anticipate needing to add a budget line for one new staff position in the first year at 50 % for the QSC and one new staff position at 25 % for the Writing Center, both in Year 1, but we are hesitant to add this to our proposed budget at this time because we don't yet have enough information to know if it is a reasonable thing to do. However, we are appreciative that this need was pointed out to us and we will endeavor to budget for the support services at the appropriate time.

Fortunately, our growth model is a modest one, unlike the quantum step that occurred when 150 freshmen came to campus for the first time, and we are confident that the support services we are proposing will be sufficient to support 20 new EE students in the fall of 2009.

3- Comments by Professor Leung Tsang:

I am Leung Tsang, Chair of the Department of Electrical Engineering, University of Washington, Seattle. I have discussed the Bothell EE program with the EE Executive Committee. I would like to provide the following review based on the input I collected.

With the projected growth of the population in Seattle and the Pacific Northwest, the UW Seattle EE Department sees an increased need for BSEE education in the state. We think it might be possible that UW Bothell can help to serve that need. We hope that the program will achieve as high a quality level as possible, in part because any problems it might have will inevitably affect the overall reputation of engineering at University of Washington.

Thank you. We agree. We want this new degree program to be successful and we have tried to be very methodical in our approach and our goals.

Although the Bothell program stated that support letters have been requested from Mani Soma and Eve Riskin, both of whom are faculty in our EE Department, they told me that they each have explicitly declined the request. They have recommended that UW Bothell contact me. However, the Bothell program has not contacted me.

This comment needs further discussion because on face value, it would seem that these two faculty members have withdrawn their support, which we do not believe to be the situation. Both Professor Riskin and Professor Soma were early supporters and originators of the idea of a DL degree program for EE. When Professor Tsang's department decided not to move forward with a DL version of the degree program it was offered to UWB and we have been actively pursuing it. Professor Riskin has developed one of the online courses, EE341, and Professor Soma has helped to architect the way to teach the introductory lab experiments with his design of specialized hardware.

Also, listing Professors Riskin and Soma in section 2.3 on page 17 of the proposal that was posted for tri-campus review is an unfortunate error on the part of the UWB EE Committee. This page was a placeholder for possible supporters when the UWB faculty committee was beginning to gather names. It should not have been made public in the document since it was an internal work product. We regret any embarrassment that this may have caused.

We are not certain why Professors Riskin and Soma have declined to write a letter of support for the program, but we can understand that as faculty members in the UWS EE department it may not be appropriate for them to voice individual support. Finally, we would be very pleased if Professor Tsang would write a letter of support for our new program and not having previously approached him is also our omission. We look forward to further conversations with Professor Tsang and other members of the UWS EE department.

A good Electrical Engineering BS program requires hardware components and training students in laboratory skills for circuits, analog and digital electronics, radio frequency techniques, etc. The EE BS program culminates in capstone designs which can require extensive laboratory facilities. Teamwork is also expected in capstone designs for accreditation. Our EE Department must invest a tremendous amount of human and financial resources on maintaining and upgrading laboratory facilities. It is uncertain that distance learning can adequately provide such quality laboratory training and hardware design in a functional teamwork environment. This may affect the prospects for accreditation.

We greatly admire the facilities and reputation of the UWS EE department and we certainly aspire to achieve their level of success at some time in our future. For now, we are focusing on what we can do, and can do well. At the outset, our program cannot hope to achieve the same breadth of courses as UWS EE, but we believe that as we develop, we can offer both on-line and on-site courses and labs and do it in a way that is consistent with an excellent education.

Also, we have surveyed a number of other EE programs and we feel that we can become accredited if we focus on what we can do. As far as doing labs in an on-line environment, we believe that we have solved this issue and, in fact, Dr. Berger has done research in this area and has submitted a paper to the Sixth International Conference on Remote Engineering and Virtual Instrumentation, sponsored by the International Association of Online Engineering and the Engineering Department of the University of Bridgeport. The conference will be held in Bridgeport, Connecticut from June 22-25, 2009.

Dr. Berger has also presented a similar paper at the 2008 INTED conference. Also, many other presenters at the INTED conference discussed methods and systems for using technology to extend the traditional student laboratory environment to a distance learning experience. The student will be using real hardware that is similar to the introductory lab equipment that the UWS EE students use in the lab. In addition, students can work in teams, even though they may not be physically in the same place.

A possible solution would be to explore the idea of combining online with on-site instruction. This may be the key to building up a strong base in the UW-Bothell area. The on-site component could provide access to the necessary hardware facilities and address a number of other potential concerns.

This is our goal as well. We are actively seeking partnerships to broaden our laboratory offerings as well as explore ways to use technology to provide the traditional laboratory experience in new and innovative ways. We can anticipate that certain courses, such as RF techniques, could eventually be offered on-line with lab demonstrations also available on-line but hands-on lessons taught at the

facility. We would be extremely grateful if, for example, UWS EE would be willing to partner with us to provide our students with an enriched laboratory experience.

An on-site component would ensure that the program is not simply competing with established national and global distance learning programs, but rather has a clear connection to students in the State of Washington, and in the region north of Seattle, thus better justifying the expenditure of state funds and other state resources. An on-site component can also serve as a backup plan if the proposed distance learning processes turn out to be ineffective.

We agree. It was gratifying to note that even with deep budget cuts made to the UW system, the plans for the development of our Science and Technology building, UW3, have not been lost. The state budget includes $5M for the phase II planning this facility. We have are already been planning for on-site facilities for future courses that would require them.

It would also provide incentives to staff some of the program with full time lecturers, ensuring instructional consistency and providing a critical mass in an intellectual community capable of developing the curriculum over time to suit the needs of its particular student body, instead of copying a curriculum from the UW-Seattle campus. At the Seattle campus, our positive experience is with full time lecturers rather than with part-time lecturers.

We agree. We intend to initially hire one or two full-time lecturers or senior lectures and then add tenure track positions as the funding becomes available.

Another concern is about finance. The financial structure of the program is believed to be self-supporting, which will require student fees far higher than UW-Seattle tuition. Will under-represented minority students be priced out of the program?

This is not a self-sustaining program. It is to be state-funded at the normal tuition rate that any UW Bothell student pays.

The EE admissions statistics in the Bothell report are somewhat misleading, as they capture a period when the UW-Seattle EE department moved to a new, higher, "High Demand" enrollment level, resulting in a temporary surge in admissions. We are presently maintaining that enrollment level.

We used the demand data including that provided to us by the UWS Engineering College. How anyone chooses to interpret data is always open to question. We also have real interest data from prospective students who have shown enough interest to send us their contact information. We have gathered interest data from 156 potential candidates for our 20 positions. From all the data we have studied, we believe that this is a high-demand degree field and that both UWS and UWB will continue to be able to select the best possible candidates for each of their respective programs.

Finally, it is apparent that the UW-Bothell program has not coordinated with the ExCEL program at UW-Seattle.

Professor Tsang is correct. However, it might be somewhat premature to coordinate with the ExCEL program before we even have a program of our own to coordinate with. We look forward to the time in the near future when we can become participants in the ExCEL program, and other cooperative programs with EE, CSE.

3- Comments by Professor Bradley Holt

When I add up the degree requirements I get more than 180 credits?

The problem is the general electives in 5.3.6. Assuming the student needs 5 credits of English comp, the numbers add up to exactly 180 credits: 145 of required courses (5.2) plus 35 credits of prerequisites (5.1). We have revised section 5.3.6 so that it represents a catch-all category from which students choose courses, when needed, to bring the total to 180 credits.

For ABET you need to check the EE requirements (example, probability).

Yes, we agree. There are several courses that we will need to add to our overall Science and Technology Curriculum that we do not have at the current time. We will be adding Probability and Statistics to our curriculum.

Is this a distance learning degree or not. If it is it must follow the UW requirements for distance learning degrees. If it is not it must meet the UW residence requirements. Can the proposal indicate which courses are distance and which are not and when students would be taking the courses (a proposed schedule)? I believe all of the existing UWB classes are on-site classes - are some of these going to be proposed as distance learning classes?

This is not a distance learning (DL) degree. This is a blended, or hybrid degree. Some number of student courses will be taken via DL, others will not. The UWB EE faculty will decide the most appropriate content delivery technology to apply on a course-by-course basis. For now, we have funding from the Sloan Foundation that is to be used to develop EE courses for on-line delivery. Thus, we have a way to jump start the program with outside funding for course development. Several courses have already been developed by UWS EE faculty, so it makes sense that we would initially leverage these courses.

Another point that should be made here is that even for those courses which have their content delivered on-line, there will likely be times when the student must come to campus, such as for taking a midterm or final exam. It then becomes a real question as to whether this course is a DL course or not. As more courses use technology as a means of delivering content, the issue of traditional versus DL will become less well-defined and it will be up to the UW faculty to view the residency requirements in a new light.

We agree that we must meet the UW residence requirements and since students will be taking both on-site and some on-line classes the advisors will need to be aware of this when they advise the students. We don't see this as an issue, but we appreciate that Professor Holt pointed it out.

We do not think it is necessary to pre-designate which courses are on-line and on-site. Also, UWB has taught some courses via DL on an ongoing basis so it is inaccurate to say that all of our courses are on-site. For example, the Nursing program routinely teaches DL classes and Dr. Berger has taught a number of CSS classes with good success via DL. For the proposed EE degree, we are currently anticipating that only some of the EE coursework would be initially offered as DL courses, but once the program is running, the EE faculty can then decide how to partition the curriculum between on-site and on-line courses.

Related to this is the proposal to have classes taught by SUNY count as UW classes. Is the proposal dependent on this? This may require class B legislation to change UW handbook.

We have held some preliminary discussions with SUNY Stoney Brook. They were an attractive partner because Stoney Brook is the primary Science and Technology campus of the SUNY system, although several of the other SUNY campuses offer EE degrees and there was the possibility of extending the cooperation beyond one campus. However, it should be emphasized that this was only a preliminary discussion that was facilitated by the fact that UW and Stoney Brook both received Sloan Foundation funding to develop on-line EE courses.

As Professor Holt points out, there are a number of issues that must be resolved before this partnership takes place. For example, UW is on the quarter system and Stoney Brook is on the semester system. There are both logistical and credit-transfer issues that would need to be resolved as well. In summary, our proposal does not depend upon this opportunity coming to fruition to have a functioning degree program at UWB. If it does work out, then it can present some interesting and exciting educational and collaborative opportunities.

Will the students pay the additional EO course fee?

Our only association with UWEO is that we are paying them a fee to host the online course content. The students pay normal UWB tuition and fees.

Can they explain which courses have or are labs? The document makes reference to the "Circuits Lab Requirement for the third year" but I can't find a 300 level course with Circuits in it.

BEE 215, BEE 233 and B EE 271 are some courses that would be taken in the third year that have circuit lab components. B EE 235 labs are done in simulation using MATLAB. However, Professor Holt correctly points out that that sentence is ambiguous and we will clarify it.

Similarly can the document indicate which courses (on site) will make use of the Bothell Campus labs, library and other services and which courses are distance courses and what student support will be available for them?

We understand the point that Professor Holt is making here but it is important that we reiterate that this is not a DL degree. The expectation is that the students will be able to avail themselves of the campus resources "as needed", in the same way that any other student would utilize campus resources. We are offering some of our course content via on-line, or DL technology, but the students are our UWB students with the same campus access expectations as any other student.

We would also like to point out that UWB is now over-enrolled and that classroom and lab space is at a premium. Other states are facing similar overcrowding and the all-too-common budgetary limitations that prevent them from expanding to meet the demand. For example, the University of Maryland now requires that all students must take a certain fraction of their courses on-line, because they lack the necessary classroom space to meet all of their educational obligations with traditional on-site classes.

How will off-site students take advantage of the software (Labview and other software). Can the UW license be extended to personal computers?

The students can purchase personal copies at very significant discounts. We will have floating licenses on the university machines for students who are on campus and want to use our computers. However, we expect that the DL students will purchase personal copies of the software. Another option would be for students to use remote access in order to run the software on the university machines, however, since the software costs are in line with the cost of a textbook, we don't see this as an obstacle.

The document says that some courses cannot be satisfied by simulation software but then "hopes" students can get experience in a number of ways? Or are these options going to be required?

It depends upon the student's interest as to what options are available to them beyond the simulation environment. For example, a student can undertake a capstone project to design and build an audio amplifier. This would involve a real design process, including designing and fabricating PC boards, acquiring parts, soldering, (yes soldering!) construction and debugging. At the end of the process they have something real to show for their efforts.
Another example would be to do an internship, independent study, or cooperative education with an industrial partner, working in the company's R&D lab along with an experience engineer. As a former R&D engineer at HP's Logic Systems Division, Dr. Berger mentored several students from local universities.

We should note that this point was also raised by Professor Tsang in his comments and we addressed it there. Briefly, we are actively seeking partnerships and other cooperative relationships with existing educational institutions with EE lab facilities in order to offer the real lab experience to our students.

Team work is really going to be done via remote desktop and IM? How is such remote lab course going to be graded? Is the capstone design class going to be onsite (since it has a group seminar)? (again, a better description of which courses are onsite and which are distance would be helpful)

It doesn't have to be done remotely, but it can be. Students can easily work in teams of two or more while both are located remotely. There are more technologies available than IM. They can be on Skype and have a dialog window open talking to each other while both are actively controlling the equipment. It would be graded in the same manner as any lab would be graded, that's the prerogative of the instructor. For example, in CSS 427 and 428 Embedded Systems Labs, the students do their own lab exercises and write their own code, but are encouraged to help each other when they have problems. This lab is also set-up to be done remotely.

Finally, we feel that a course does not need to be uniquely identified as DL or on-site because we want to retain the flexibility to decide how we will be delivering course content on a course-by-course basis. While we would at first be offering some course content on-line, we may choose to offer the same course on-site at a future time, or offer two sections of the course, on on-line and one on-site at the same time.

There are no Engineering Topics courses listed for the degree

The Engineering Topics courses are there, they're just broken into different section heading.

Math 235 is listed as taught by Cascade Community College. Is this going to be transfer credits? I am not aware how it would be possible for UW students to be required to take courses at another institution to satisfy degree requirements.

Professor Holt is correct. However, we are planning to offer all required courses, including Math 307. Fortunately, Cascadia Community College and UW Bothell are co-located and it is relatively simple for our students to take classes there, if necessary. For example, UWB students have taken foreign language courses at Cascadia using their excellent facilities.

Will transfer students be able to graduate in 2 years? The curriculum lists 5 200 level required courses and only requires three 300 level courses?. Can the proposal lay out the expected schedule for students (2 year and 4 year)?

Appendix B is a course roadmap for the program. We believe that a transfer student who comes in with an AA degree from a community college that offers a UW-transferable pre-engineering degree should be able to graduate in two years from the time they enter UWB.

What electives are going to be offered the first group of students (given the limited size of the proposed faculty). Can the proposal map out the courses offered starting in the fall for the next two years (or until the first student graduates?) to ensure the first students are going to be able to timely graduate and they can meet the expected graduation targets given the small size of the proposed faculty?

We will have some electives to offer the first group of students. The breadth of the offering will depend upon how soon the initial faculty is in place and what courses they feel comfortable teaching. However, there is a core of CSS faculty who have EE backgrounds and have already agreed to help staff the new program.

What is the state of course approval given this is May and the curriculum starts in the fall?

We've already submitted the first course approval for B EE 215 and it is ready to be taught in the fall of 2009.

Appendix A: Comments to the EE Degree Proposal as posted to the Catalyst GoPost website

I. Comments by Professor Leung Tsang, chair of the UWS EE Department

I am Leung Tsang, Chair of the Department of Electrical Engineering, University of Washington, Seattle. I have discussed the Bothell EE program with the EE Executive Committee. I would like to provide the following review based on the input I collected.

With the projected growth of the population in Seattle and the Pacific Northwest, the UW Seattle EE Department sees an increased need for BSEE education in the state. We think it might be possible that UW Bothell can help to serve that need. We hope that the program will achieve as high a quality level as possible, in part because any problems it might have will inevitably affect the overall reputation of engineering at University of Washington.

Although the Bothell program stated that support letters have been requested from Mani Soma and Eve Riskin, both of whom are faculty in our EE Department, they told me that they each have explicitly declined the request. They have recommended that UW Bothell contact me. However, the Bothell program has not contacted me.

A good Electrical Engineering BS program requires hardware components and training students in laboratory skills for circuits, analog and digital electronics, radio frequency techniques, etc. The EE BS program culminates in capstone designs which can require extensive laboratory facilities. Teamwork is also expected in capstone designs for accreditation. Our EE Department must invest a tremendous amount of human and financial resources on maintaining and upgrading laboratory facilities. It is uncertain that distance learning can adequately provide such quality laboratory training and hardware design in a functional teamwork environment. This may affect the prospects for accreditation.

A possible solution would be to explore the idea of combining online with on-site instruction. This may be the key to building up a strong base in the UW-Bothell area. The on-site component could provide access to the necessary hardware facilities and address a number of other potential concerns.

An on-site component would ensure that the program is not simply competing with established national and global distance learning programs, but rather has a clear connection to students in the State of Washington, and in the region north of Seattle, thus better justifying the expenditure of state funds and other state resources. An on-site component can also serve as a backup plan if the proposed distance learning processes turn out to be ineffective
It would also provide incentives to staff some of the program with full time lecturers, ensuring instructional consistency and providing a critical mass in an intellectual community capable of developing the curriculum over time to suit the needs of its particular student body, instead of copying a curriculum from the UW-Seattle campus. . At the Seattle campus, our positive experience is with full time lecturers rather than with part-time lecturers.

Another concern is about finance. The financial structure of the program is believed to be self-supporting, which will require student fees far higher than

UW-Seattle tuition. Will under-represented minority students be priced out of the program?

The EE admissions statistics in the Bothell report are somewhat misleading, as they capture a period when the UW-Seattle EE department moved to a new, higher, "High Demand" enrollment level, resulting in a temporary surge in admissions. We are presently maintaining that enrollment level.

Finally, it is apparent that the UW-Bothell program has not coordinated with the ExCEL program at UW-Seattle.

II. Comment by d6423

Please correct the numbers in the enrollment and graduation headcount table at the end of the proposal. Also, please indicate the number of credits for each of the required courses. Section 5.3.2 is difficult to follow.

III. Comment by davidgs

It should be made clear that the Quantitative Skills Center (see sec. 6.6) and the Writing Center (see sec. 6.7) would need funding for additional tutors and training to support students in electrical engineering.

IV. Comments by Professor Bradley Holt, UWS Chemical Engineering

When I add up the degree requirements I get more than 180 credits?

For ABET you need to check the EE requirements (example, probability).

Is this a distance learning degree or not. If it is it must follow the UW requirements for distance learning degrees. If it is not it must meet the UW residence requirements. Can the proposal indicate which courses are distance and which are not and when students would be taking the courses (a proposed schedule) I believe all of the existing UWB classes are on-site classes - are some of these going to be proposed as distance learning classes?

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support will be available for them?

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There are no Engineering Topics courses listed for the degree

Math 235 is listed as taught by Cascade Community College. Is this going to be transfer credits? I am not aware how it would be possible for UW students to be required to take courses at another institution to satisfy degree requirements.

How does the curriculum satisfy the UW requirement writing requirements? (...no fewer than 12 credits of writing consisting of 5 credits of English Composition and 2 additional writing-intensive courses...)?

Will transfer students be able to graduate in 2 years? The curriculum lists 5 200 level required courses and only requires three 300 level courses?. Can the proposal lay out the expect schedule for students (2 year and 4 year)?

What electives are going to be offered the first group of students (given the limited size of the proposed faculty). Can the proposal map out the course offered starting in the fall for the next two years (or until the first student graduates?) to ensure the first students are going to be able to timely graduate and they can meet the expected graduation targets given the small size of the proposed faculty?

What is the state of course approval given this is May and the curriculum starts in the fall?

Transfer Students

Autumn	Winter	Spring
B EE 215	B EE 233	B EE 235
VLPA/IS	VLPA/IS	B EE 271
Stat 390	B EE topics	CSS 301
Autumn	Winter	Spring
B EE 331	B EE 332	B EE 495
B EE Elective	B EE Elective	B EE Elective
B EE Elective	B EE Topics	B EE Elective

4 yr Students

YR1	Autumn	Winter	Spring
	BCUSP 101	DC 2 (VLPA/IS)	DC 3 (VLPA/IS)
	BCUSP 142	BCUSP 125	BCUSP 126
	BCUP 124	BCUSP 149	BCUSP 150
YR 2	Autumn	Winter	Spring
	Math 307	Math 308	Math 324
	BCUSP 151	STATS	VLPA/IS
	VLPA/IS	VLPA/IS	CSS 161
YR 3	Autumn	Winter	Spring
	E ENGR 215	E ENGR 233	E ENGR 271
	CSS 162	E ENGR 235	E ENGR 331
	VLPA/IS	BCUSP 135	CSS 301
YR 4	Autumn	Winter	Spring
	E ENGR 332	E ENGR elective	E ENGR 495
	E ENGR elective	E ENGR elective	E ENGR elective
	E ENGR topics	E ENGR topics	E ENGR elective

Transfer Students
Winter admits
Fall 2010 admits

Yr 1
8 classes

Autumn	Winter	Spring
215	233	235
BEE topics		271
215		233
BEE Topics		

Yr2
23 classes

Autumn	Winter	Spring
331	332	495
BEE Elective	BEE Elective	BEE Elective
BEE Elective	BEE Topics	BEE Elective
235	331	332
271	BEE Elective	BEE Elective
	BEE Elective	BEE Elective
215	233	331
233	235	271
		215
		233

Yr 3
27 classes

Autumn	Winter	Spring
BEE Topics	BEE Elective	495
BEE Elective	BEE Elective	BEE Elective
BEE 495	BEE Topics	BEE Elective
332		
BEE Elective		
BEE topics		
233	235	331
BEE topics	271	BEE Elective
		BEE Elective
215	233	271
233	235	331
		215
		233

Appendix B. Proposed course roadmap for the EE program

RECEIVED
AUG - 4 2009
Office of the Provost
University of Washington

JESUS HERNANDEZ
CHAIR

ANN DALEY
EXECUTIVE DIRECTOR

STATE OF WASHINGTON
HIGHER EDUCATION COORDINATING BOARD

917 Lakeridge Way SW • PO Box 43430 • Olympia, WA 98504-3430 • (360) 753-7800 • FAX (360) 753-7808 • www.hecb.wa.gov

July 28, 2009

Dr. Phyllis M. Wise
Provost
University of Washington
P.O. Box 351230
Seattle, WA 98195-1230

Dear Dr. Wise:

The Higher Education Coordinating Board reviewed University of Washington Bothell's request to establish a Bachelor of Science in Electrical Engineering at its July 28 meeting.

Resolution No. 09-14 (copy enclosed) was adopted by the Board and grants conditional approval to University of Washington Bothell to begin offering the degree program effective winter 2010.

Conditions to be met prior to enrolling students:

- University of Washington Bothell must inform prospective students of its accreditation status and the implications of that status for students.

Conditions to be met prior to the earlier of the program's first five-year program review or expansion of the program's enrollment beyond 42 average annual student FTE:

- University of Washington Bothell will demonstrate that it has expanded distance learning opportunities for students;

- University of Washington Bothell will demonstrate that a substantial proportion of students enrolled in the program are being served outside of King County;

- University of Washington Bothell will report to the HECB on the placement results of the first graduating cohort; and

- University of Washington Bothell will notify the HECB that it has obtained ABET accreditation for the program.

We have also forwarded a copy of the report and resolution to our veterans' affairs approval unit, the State Approving Agency, and have assigned CIP Code 14.1001 to this program.

We wish you success with this program.

Sincerely,

Randy Spaulding, Ph.D.
Director of Academic Affairs

cc: Ann Daley, Executive Director
Michael Ball, Associate Director, State Approving Agency

JESUS HERNANDEZ
CHAIR

ANN DALEY
EXECUTIVE DIRECTOR

STATE OF WASHINGTON
HIGHER EDUCATION COORDINATING BOARD
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RESOLUTION 09-14

WHEREAS, The University of Washington Bothell proposes to offer a Bachelor of Science in Electrical Engineering; and

WHEREAS, The program would support University of Washington Bothell's mission and the *Strategic Master Plan for Higher Education*; and

WHEREAS, The program would spearhead University of Washington Bothell's efforts to broaden its offerings in science, technology, engineering and mathematics; and

WHEREAS, The program's students would study a high quality curriculum carefully designed with program-specific accreditation in mind; and

WHEREAS, The program has support from external reviewers; and

WHEREAS, The program would be offered at a reasonable cost; and

WHEREAS, The program would be established using a hybrid model including a substantial online component with potential to ultimately reach students across the state; and

WHEREAS, Program planners have expressed University of Washington Bothell's intent to offer a distance learning option; and

WHEREAS, Program planners have presented evidence regarding need for the program and nonduplication of existing programs sufficient to warrant conditional approval of the program;

THEREFORE, BE IT RESOLVED, That the Higher Education Coordinating Board conditionally approves the Bachelor of Science in Electrical Engineering at the University of Washington Bothell, with hybrid and/or distance delivery, subject to the following:

Conditions to be met prior to enrolling students:

- University of Washington Bothell must inform prospective students of its accreditation status and the implications of that status for students.

Conditions to be met prior to the earlier of the program's first five-year program review or expansion of the program's enrollment beyond 42 average annual student FTE:

- University of Washington Bothell will demonstrate that it has expanded distance learning opportunities for students;

- University of Washington Bothell will demonstrate that a substantial proportion of students enrolled in the program are being served outside of King County;
- University of Washington Bothell will report to the HECB on the placement results of the first graduating cohort; and
- University of Washington Bothell will notify the HECB that it has obtained ABET accreditation for the program.

Adopted:

July 28, 2009

Attest:

Jesus Hernandez, Chair

Roberta Greene, Secretary