University of Washington Department of Electrical Engineering Ten Year Review, December 2001

Submitted by

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Executive summary

The University of Washington Department of Electrical Engineering has made dramatic progress. The deficiencies pointed out in the 1988 review have largely been corrected. The Department has attracted a cohort of high quality junior and mid-career faculty – all nine of the recently appointed Assistant Professors have received NSF Career awards. There are visionary research projects, and governmental, peer reviewed research funding is increasing rapidly. Department members are dedicated to continuing improvement of all aspects of the Department's operations, and they stand behind the leadership. The prevailing spirit is one of optimism and excitement - "we are on the move". The Chair, leadership team, faculty, and staff deserve a lot of credit for this transformation, which has mostly taken place in the last four years.

While the indicators are pointing in the right direction, continuing the Department's transformation from a regional undergraduate educational program to a highly ranked research powerhouse - a transformation started in the 1980s - poses some challenges. Concrete suggestions are summarized below and laid out in detail in the body of the report. *These suggestions, some of which emerged in discussions with Department members and are already being implemented, should not detract from the overall very favorable impression gained in the review.*

Principal recommendations to the Department

Undergraduate program
- Examine the size of the program to ensure that it is in line with resources. In view of rapidly increasing demand, the program should become more selective in its admissions policy so that it can continue to improve in quality and in attention paid to individual students.
- Correct the misalignment between course offerings and demand. Encourage faculty to occasionally teach outside their own areas of specialization.
- Develop medium and long range plans for course offerings and staffing so that students can plan their course schedules and are not held up in their progress due to unavailability of courses.
- Introduce lab fees to help fund improvement of the undergraduate labs.
- Continue to expand research opportunities for undergraduates. The recent appointment of an undergraduate research coordinator is an important step in this direction. Some qualified undergraduates might gain valuable experience by helping to design and coordinate laboratory and instructional materials for lower level students

Graduate program
- Define clear rules governing the transition of students from the MS to the Ph.D. program.
- Reduce the large discrepancy between TA and RA salaries, for example by creating mixed TA/RA positions.

Educational outreach / Edge
Consider abandoning Edge - the benefits to the Department seem small and not worth the effort.

Research
- Rethink the strategic research areas, *Signal Processing for Information Technology* and *Complex Networks*.
- Generate funds for improvement of the research infrastructure by increasing the cost of course buyout, centrally retaining RCR instead of passing it on to investigators, and starting a computing recharge center.
- Reduce the number of research faculty and make sure that research appointments follow the same process and undergo the same scrutiny as tenure track appointments. Research faculty vote, advise students, and represent the Department towards the outside, and thus have a significant impact on the actual or perceived quality.

Departmental culture
The Department still feels somewhat like an agglomeration of research groups rather than a cohesive unit. Possible remedies might include:
- Create a shared course for all entering graduate students, along the lines of "Introduction to the Profession of Electrical Engineering", and institute common instead of group specific qualifying exams.
- Start a departmental colloquium series and explore other ways to break down barriers between research groups.
- Adopt uniform hiring procedures for research faculty, involving some participation of students and faculty from all research areas.
- Organize a more uniform mentoring process for junior faculty.

Principal recommendations to the University

- Conduct a thorough budget review to determine whether the Department's budget is in line with its instructional load.
- Bring state salaries closer to the level at the peer institutions. The A/B salary plan is not a solution; it carries significant risks and has to be carefully monitored.

Introduction

Our review of the Electrical Engineering programs extended over a period of roughly three weeks, starting with the charge meeting on November 18, 2001, and culminating in the site visit on December 4-5, 2001. We carefully examined the extensive and informative *Self Study* document prepared by the Department. The UW internal committee members conducted more than 30 meetings with the Department leadership, faculty, staff, and graduate students, and undergraduates (individually or in groups.) They briefed the external committee members on the results of these conversations prior to the site visit. The site visit itself involved meetings with Department members as well as University officials and Chairs of other departments interacting with Electrical Engineering.

From this broad base of information emerged a coherent picture of the Department that is presented in this report, which is endorsed by all review committee members. The report is structured into sections discussing the undergraduate program, the graduate program, research, and departmental culture. Each section contains a set of recommendations; those recommendations are also gathered in the Executive Summary of the report.

Undergraduate Program

We were impressed by the diversity and good cheer among the undergraduates who spoke to us. On the whole, they seemed to feel they are receiving good training, and they are glad to be a part of the Department. Nevertheless, the students, the counseling staff and the Chair and Associate Chair for Education spoke to us about several problems facing the EE undergraduate program. The most basic of these problems is the program size, which seems excessive relative to the available resources. While the desire to offer educational opportunities to as many students as possible is commendable, a more selective admissions policy would improve the quality of the majors and would allow the faculty to devote more attention to individual students.

We identified the following three additional areas in which the undergraduate program in EE could be improved:

1. *Course offerings.* The undergraduate curriculum needs an overhaul, and this is already being planned. In addition to revisions of content, scheduling of courses could be improved. In particular, the Department should try and rectify the imbalance between student demand and offerings for the capstone design courses that is shown in Figure 3.4 of the *Self Study* and was commented on by a number of the students.
2. *Undergraduate Laboratories.* Laboratory equipment purchase and maintenance is not adequately supported. It is sometimes difficult for students to carry out their laboratory assignments because some of the available software is inadequate and there are not always enough TAs for the laboratory courses. Furthermore, TAs are sometimes assigned to classes for which they are not well prepared.
3. *Faculty/student interaction.* Some students are involved in a very healthy program of undergraduate research activities, but many students still graduate from EE without ever having had an opportunity for contact with faculty outside the classroom.

Steps that could improve the undergraduate experience in EE include:

1. Implementation of long-term course and course sequence planning and staffing policies, paying particular attention to the misalignment problems.
2. Provision of additional resources for laboratory infrastructure, for example by charging lab fees.
3. Establishment of a stronger training program for laboratory TAs.
4. Extension of the undergraduate research program, and in particular, involvement of able undergraduate research students in writing software and improving instrumentation for the laboratories. The recent appointment of an undergraduate research coordinator is an important and timely step in the right direction.
5. Mentoring of students by faculty members.

The Review Committee commends the Department team running the undergraduate program. The Associate Chair for Education in particular deserves credit for his sensitivity to the needs and desires of the students, and his efforts on their behalf. The committee was also impressed by the dedication and warmth of the advising staff.

Graduate Program

Like everything else in the Department, the graduate program has shown significant improvements over the past few years. These include better support from the staff and faculty advisers for the graduate program, more effective recruiting of quality graduate students, and the beginning of national recognition for the students as witnessed by the award of National Science Foundation graduate fellowships. The Department deserves accolades for these improvements.

There also are some aspects of the program that require attention. While the Department appears to be aware of most if not all of them, we still feel that it is worthwhile to repeat them here.

In the past, very few graduates of the Department have taken positions at leading industrial laboratories or at major universities. As reputation is in large part based on the quality and the visibility of the graduates, especially the Ph.D. students, the Department has to work diligently and patiently to improve in this dimension.

It is crucial that the graduate students work with their advisers on intellectually meaningful and scholarly ideas. Indeed, this is undoubtedly the most important condition for placing graduates in top companies and universities. The quality of the faculty, especially given the strong hires over the recent years, provides an excellent foundation for scholarship of this caliber. Although not every project or every student will produce intellectually deep results, this should nevertheless be the goal of the Department. The faculty must collectively take responsibility for educating the students to be able to recognize, if not produce, fundamental contributions in the field. Improvements in this direction will enhance the reputation of the Department and make it easier for the entire research enterprise to take its next leap forward.

The focus on scholarly work requires special attention in industry-sponsored research. Such research can provide excellent opportunities for faculty and students to build connections with industry, understand key problems that industry faces, obtain access to proprietary data, etc. At the same time, the department must remain vigilant in ensuring that all students, foreign and

domestic, masters and doctoral, are working on research that is intended not only to satisfy funding obligations but also, and primarily, to enhance their careers.

In general, the Department needs to improve the mentoring of graduate students. Mentoring is not precisely the same as advising: mentoring focuses on the development of the students' careers as opposed to the more narrow (and critically important) notion of advising, which focuses on the academic aspects of the students' time in graduate school. (Angela Linse, from CELT, is well versed in these issues and can provide documentation and perhaps some workshops if the Department desires.) The success of students depends not only on academic achievements, but also on an understanding of how the world works: how does one meet and build visibility among non-UW leaders in the field, how are publications assessed and reviewed, which universities and laboratories are likely to be good matches for the students, etc.

The Department is well aware of the problems that have arisen from the discrepancy between TA and RA salaries. Lower pay for TAs conveys the message that teaching is less important than research - a message the UW has spent years trying to eliminate. It can lead to a financial disadvantage for domestic students who have fewer language problems and thus might be more likely to be assigned as TAs, and to high TA turnover, making it hard to keep continuity in the Labs. We have few solutions to suggest, with the potential for differential TA rates in the College of Engineering being one possible (but politically difficult) solution. Another, longer-term, solution would be to find discretionary funds (through a combination of industrial gifts, additional fellowships and self-sustaining programs, perhaps) to reduce or eliminate the discrepancy. In the meantime, the department must find some ways to reduce the most egregious consequences of the disparity. One possibility that might alleviate some of the pressure is to create mixed TA/RA positions.

The review committee recommends that the Department consider adopting a TA requirement for its graduate students. This may mitigate the pay discrepancy problems to a small degree, but the real motivation is to give the students the experience of teaching, which is of intrinsic value.

There were suggestions from both undergraduates and graduate students that the assignments of TAs to courses could be improved (in particular, better matching the TA's expertise to the course material) and that the Department could improve the training of TAs.

Our understanding of the structure of the qualifying examination is that faculty in each research group are responsible for judging the students in their group. Our perception is that this approach causes two problems. First, it may reduce the breadth of training across electrical engineering that the students receive as part of their graduate work. (The Department's response to this concern was that graduate students usually get breadth in electrical engineering as undergraduates, with graduate school being a time to focus on a more narrow area. The committee did not fully agree with this response.) Second, it leads to the perception that students are not citizens of the Department, but are rather members of their research groups. Not only does this diminish the sense of community, but it also reduces the sense of the faculty that they are indeed responsible for the overall education of each and every graduate student in the program. We recommend very strongly that the Department consider a change in the qualifying exam structure that shifts the responsibility from the research groups to the Department as a whole. We would also like the Department to consider a shared course for all entering graduate students, along the lines of "Introduction to the Profession of Electrical Engineering". Such a course could introduce students to the Department, how it works, who's in it, and what they do (at the level of IEEE Spectrum, say). This would help students understand the Department and its role in and contributions to UW and the world at large. Such a course could also be used to introduce more formal mentoring

procedures. Under the "professionalism" part of the title, one could stress the four Cs of engineering education: communication, collaboration, cost analysis, and continuing education. These are pertinent to all graduate students whether they continue their careers in industry, government, or academia

The Department should revise the process by which students advance from the MS to the Ph.D. program. At present, this process appears to be somewhat ad hoc.

Research

The Department's strength in research has increased significantly in the last four years, as witnessed for example by the rapid increase in external funding. This improvement can be expected to continue as the very good cohort of Assistant Professors reach their peak productivity. Nevertheless, there are some areas that require attention. We address three of them here: (1) the choice of "strategic research areas"; (2) the research infrastructure; (3) the role of research faculty.

Strategic research areas

The Department has identified three strategic research areas: *Genomics, Proteomics, and Health Care Diagnostics, Signal Processing for Information Technology*, and *Complex Networks*. Of these three, the first one seems the most promising and exciting. It is in a "hot" area, well defined, funded by a large NIH grant, and ideally positioned to draw on the UW strength in the Health Sciences and in Biotechnology.

The second area, *Signal Processing for Information Technology*, has to be brought into sharper focus. The connections between the different areas - speech recognition, image analysis, video compression – are not yet well articulated. There is a common intellectual core and maybe even the potential to create some common software infrastructure. Multi-resolution analysis, Bayesian estimation, and Markov models are some of the tools that are applicable in all three domains.

The third area, *Complex Networks*, appears so vaguely defined at present that its potential is hard to assess.

The area of photonics or optics is considered an important one in most EE departments. This is a very broad field covering optical and photonic devices at the macro level (optical fiber, lasers, etc.) down to the micro level (for example, microelectromechanical systems or MEMS for controlling micron-sized mirrors). It would be good for the Department to at least talk seriously about establishing a presence in this area.

An important point to keep in mind when discussing strategic research areas is that they potentially serve two purposes. First, defining strategic research areas can be a tool to identify and exploit synergies among the research activities of faculty already in the Department. Second, they can be used to drive hiring decisions. These are very different objectives: One might well define a strategic research thrust in an area that is not at the cutting edge of Electrical Engineering research because there are faculty with strength in the area who are unwilling or unable to change their research focus. However, existing faculty strength is neither a necessary nor a sufficient condition for hiring in an area. Not everyone in the Department needs to be part of a "group" or

"center." In some fields, being a singleton researcher is viable. Such individuals often interact fruitfully with various groups within the department, school, and university. Each of them identifies his or her own strategic research areas, and collectively this can help sustain a thriving department. Various groups, centers, and coalitions will form and disperse over time as the research winds blow. This is good and natural.

Research infrastructure

The increased research activity is taxing the Department's infrastructure. Research groups are responding to this problem by creating their own support systems. This is not necessarily the best option. Some services are better provided centrally, to make use of economies of scale. Another important consideration is that the amount of funding a research activity can attract is not necessarily indicative of its intellectual and educational merit. Both points argue for a judiciously chosen balance between central and group specific support.

Improving the centrally provided infrastructure requires more resources at the Department level. Given the current financial climate, these resources will not come from the University. They have to come from grants. Some suggestions for retaining some of the grant riches at the central level are:
- Charge investigators more for course buyout. A number of departments have adopted the rule that buying out one course of, say, a teaching load of four courses costs one quarter of the faculty member's nine months salary.
- Retain RCR at the Department level instead of passing it on to the principal investigators.
- Start a computing recharge center and charge grants for computing support.

All these measures would have to be phased in over some time. They also require a concern for the common good by all involved, especially by the faculty members with large grants.

Role of research faculty

Most of the current Research Assistant Professors were hired on the initiative of individual senior faculty members. They did not go through the interview process required for tenure-track appointments. In fact, some of them did not even visit before they arrived to take up their positions, and they were not introduced to the students and faculty of the Department. They basically serve specific research groups more like Postdocs or Research Associates, to help their sponsors in fulfilling their research contract obligations.

A potentially serious problem with this procedure is that research professors have voting rights. Given their large share of the faculty body (14 research professors vs. 43 tenure-track professors) they carry substantial weight in departmental decisions. There is a mismatch between the process by which they were hired and their job functions on the one hand, and the responsibilities they have once they show up on campus on the other hand. This issue needs to be dealt with carefully by the Department leadership. The selection process for research faculty has to be strengthened and made more similar to the process for tenure track faculty. The Research Assistant Professors need to be better mentored and prepared for the responsibilities bestowed upon them; they also should be given specific guidelines for promotion and future career prospects either inside or outside the department.

There appears to be a perception that research groups need research professors to successfully manage research contracts and supervise students. This is not true nationally. Many groups have

large numbers of "researchers" affiliated with them, to be sure, but they generally find a way to hire such people in a way that does not conflict or compete in any way with normal faculty positions. Transfer of duties from regular faculty to research faculty carries some risk. By advising students, producing publications, and representing the Department at conferences, research professors have a significant impact on the actual or perceived quality of the Department. This is another reason why it is critical that research professors meet the same quality standards as regular faculty. If research faculty measuring up to these standards cannot be found, then reducing the size of the research enterprise might be a better answer than compromising the quality.

Departmental culture

There are some very positive aspects to the department culture. There seems to be an almost universal perception that, thanks to strong leadership and group efforts, the Department is improving steadily as an intellectual and pedagogical center. Also outstanding is the degree to which women and members of national and ethnic minority groups participate in and/or lead department activities at all levels.

On the other hand, we noted some problems, the most pervasive of which is the effective balkanization of the department; it functions largely as a collection of research groups, rather than as a cohesive unit. This has the following adverse consequences for graduate students and faculty.

There are no courses that all Ph.D. students take together. The Ph.D. Qualifying examination is written and administered separately in each of the research groups for students in that group; there is no uniform departmental exam. The junior faculty and graduate students appear to feel isolated inside their research groups; several of the Research Assistant Professors and graduate students who met with us had not met each other previously. There is no regular departmental seminar or colloquium. Junior research faculty are hired quite informally by research groups, with little or no participation by students or faculty outside. Mentoring of junior faculty is left to senior faculty in the research groups. It appears to be very uneven and, while in some cases communication has been excellent, some of the junior faculty members stated that they had received no advice on departmental expectations, promotion and tenure procedures or grant application philosophy.

The Executive Committee is aware of these problems, and some social activities have been instituted to try to combat them, but more needs to be done. Steps that can strengthen the cohesiveness in EE might include:
- Create a course taken by all incoming graduate students, and institute common instead of group specific qualifying exams.
- Start regular departmental colloquia.
- Adopt uniform hiring procedures for research faculty, involving some participation of students and faculty from all research areas.
- Organize a more uniform mentoring process for junior faculty.

Relationship between Electrical Engineering and Computer Science & Engineering

In its *Self Study*, Electrical Engineering emphasizes comparisons to Computer Science & Engineering, in aspects ranging from salaries to a request that the two departments be reviewed jointly roughly a decade from now.

Electrical Engineering naturally overlaps with Computer Science & Engineering, as it does with other departments in the College and the University (e.g., Bioengineering, Materials Science & Engineering, and Chemistry). There are faculty members in those units who could easily be in Electrical Engineering, and vice versa. This shows that Electrical Engineering is and can continue to be a strongly collaborative unit across the campus.

Nonetheless, this overlap does not make the Electrical Engineering Department into a Computer Science Department. Electrical Engineering should measure itself primarily against Electrical Engineering Departments at peer Universities. Focusing too much on comparison (and competition) with Computer Science & Engineering can be counterproductive.

Organization of the Review

The committee received its charge on November 14, 2001; see Appendix A for a copy of the charge letter. In the approximately two weeks between November 14 and the site visit the UW internal members of the committee (Marcia Baker, David Notkin, and Werner Stuetzle) met, individually or as a group, with EE Chair Howard Chizeck, the leadership team, and numerous faculty, staff, and students; see Appendix B for a list of names. The information gathered in these conversations was communicated to the external committee members (Kent Fuchs, Alan Laub, and Theresa Meng) prior to the site visit. The site visit took place on December 3-4, 2001; see Appendix C for the agenda.

The members of the review committee join in thanking the many participants in the review process for their contributions. It was a pleasure to review such a sound program, focusing on ways to further improve its quality.

Appendix A: Charge letter

UNIVERSITY OF WASHINGTON
The Graduate School
200
Box 351240
Seattle, Washington 98195-1240

Telephone: (206)543-5900
Fax: (206)685-3234

November 14, 2001

Werner Stuetzle
Professor and Chair
Department of Statistics
Box 35354322

RE: Department of Electrical Engineering 10-year Review

Dear Werner:

The specific action needed at the end of your review is a recommendation regarding the continuation of the Department of Electrical Engineering's BS, MS and PhD degree programs. The range of possible recommendations runs from suspension of entry to continuation with a subsequent review in ten years. Shorter terms can be recommended if deemed appropriate. Perhaps more important than the specific recommendation of status and review period, your review has the potential to offer the School and the administration an independent assessment of the health of the School's programs and advice on how they might be improved.

The review is most likely to be successful if tasks are divided among the committee members effectively. The internal reviewers may be able to conduct some assessments and interviews prior to the day of the actual site visit. It is suggested that the external reviewers be relied upon to serve as content experts with regard to degree programs. They also are likely to be the most able to comment on developments in the field that should be addressed. It is also important to communicate with the Department so that they know what you will be most interested in at the site visit.

The site visit will culminate with an exit interview divided into two portions, the first with the Chair and perhaps other program representatives present, and the second without these program representatives. The College Deans will be present at both sessions, as will the Deans and Associate Deans of the Graduate School and the Office of Undergraduate Education, and the Associate Provost for Academic Planning. Please let us know what your formal recommendation regarding continuance is likely to be early in the second period of the exit interview. We hope to have your written report within 6 weeks of the site visit and to have the UW members of the committee attend a meeting of the Graduate School Council to present your findings and comment on the Department's response. Augustine McCaffery will provide you with a model report if you would like. Please call upon her for any assistance you may need in the course of this review.

The most important objective of your review is an assessment of the academic and educational quality of the School and its programs. The important questions are: Are they doing what they should be doing? Are they doing it well? How can they do things better? How should the University aid them? Each question can be asked in each sphere of operation. The test to apply in deciding how to prioritize issues is to consider how important each is to scholarship or education. Listed below are several issues that may help you as you begin. This list is not intended to restrict your review; you should consider all issues that you deem to be sufficiently important and eliminate those of lesser importance.

General

1. This department has undergone tremendous growth over the past several years. It has developed outstanding research programs, maintained a large undergraduate program, expanded its doctoral program and supports an active K-12 outreach program. It clearly is doing some very exciting things. It has also developed, in the words of the self-study, a structural budget problem. Many pages in the self-study are devoted to this problem. A thorough budget analysis is beyond the scope of the academic program review, although you may deem some comments to be in order. The review should focus on the department's programs and its trajectory.
2. Is the department appropriately sized to its mission?
3. The Department plans to undertake a revision of both undergraduate and graduate curricula incorporating the comments of this review and the just finished ABET accreditation. Your comments in this regard are therefore particularly timely.
4. The Department does not describe its interactions with other units very extensively. Given scope of the field and the opportunities for interaction it presents, what is your assessment of the contributions this Department makes to the rest of the University through these interactions? Are there important unrealized opportunities?
5. This is the first academic program review that EE has had since the Department of CSE was formed from elements in Arts and Sciences and the Department of EE. While EE and CSE (on any campus) are always likely to intersect, it is important to determine whether they are partner well and appropriately compliment one another. In your opinion, has EE set an appropriate course for itself since the split? Are there significant areas of the field that the department is not addressing as you might think it should?
6. Please provide the Department an assessment of how it is doing in regard to its vision for itself (page 7).

Undergraduate

1. Please comment on the quality of the undergraduate program and experience.
2. Your comments regarding what is essential content and what should be considered optional in the undergraduate curriculum and what should be viewed as optional are sought in light of the curriculum revision to be undertaken (pages 36 and 37).
3. Is the size of the undergraduate program appropriate given demand and resources?
4. Do you see opportunities for increased educational efficiency in the undergraduate program? Do you have any suggestions for increasing the graduation efficiency index (page 44)?
5. Are there opportunities for additional undergraduate participation in research that may have not been realized?
6. Are there opportunities for survey courses in addition to the "Secret life of the electron" that it might be advantageous for this department to offer?

Graduate

1. Is there adequate strength in each of the 12 areas of graduate study listed on page 45?
2. EE has some problems maintaining competitive RA and TA stipends. Do you see any solutions that have not yet been considered (page 50)?
3. The elapsed time for a PhD is 6.1 years on average. Is this appropriate for the field?
4. Is the quality of the graduate programs high? How do the students feel about the "graduate school experience"? Is there a sense of community among them?

Faculty and research

1. The department has added many new faculty in the past few years. Are they well assimilated and mentored? Do they know what is expected of them?
2. Have issues of diversity been addressed well during this period of growth?
3. Salaries, as you know, are low throughout the University. Is there an unusual problem in this Department?
4. Do the seven research groups (page 61) function well? Are there others that you think should be developed? How do they work with the research thrust clusters (page 71)?
5. The self-study cites shortages of faculty in digital systems, photonics, communications and optical communications. Do you agree with this assessment? What decisions has the department made about areas that it can and cannot accommodate? Does it look to overall College strength in making these choices? What are your observations regarding the most urgent areas for growth?
6. The size of the research track faculty has doubled over the past 3 years. What are the plans/ expectations for continued growth? How will space issues be addressed?
7. Large interdisciplinary teams have been formed relatively recently and are returning significant gains in research funding. Are there any important issues that have arisen with this evolution that you think ought to be addressed?
8. The Department cites several problems with the "A/B" salary plan, which is widely used on campus. One of the problems has to do with the possibility that a faculty member may overlook responsibilities that do not contribute to the "B" portion of the salary. Does the Department have rules about suitable discharging "A" responsibilities in order to be eligible for the "A" portion?

Sincerely,

John T. Slattery
Associate Dean
Academic Programs

c: Marsha Landolt, Dean and Vice Provost, The Graduate School
Debra Friedman, Associate Provost for Academic Planning, Office of the Provost
Denice Denton, Dean, College of Engineering
George Bridges, Acting Dean and Vice Provost, Undergraduate Education
Howard Chizeck, Chair, Department of Electrical Engineering
Members of the Review Committee:
Marcia Baker, Professor, Department of Earth and Space Sciences
David Notkin, Professor, Department of Computer Science and Engineering
Kent Fuchs, Professor and Head, School of Electrical and Computer Engineering,
    Purdue University
Alan Laub, Department of Electrical and Computer Engineering,
    University of California at Davis
Teresa Meng, Professor, Department of Electrical Engineering, Stanford University
Augustine McCaffery, Assistant to the Dean

Appendix B: Meetings or conversations with Department members prior to the site visit

Howard Chizeck, Chair

Senior leadership team
  John Sahr, Associate Professor, Associate Chair for Education
  Mari Ostendorf, Professor, Associate Chair for Research
  Bruce Darling, Professor, Graduate Program Coordinator
  Rich Christie, Associate Professor, Undergraduate Program Coordinator
  Eve Riskin, Associate Professor, Undergraduate Research Coordinator

Teri Reed, Administrator

Advising staff
  Helene Obradovich, Advising Counselor Lead
  Frankye Jones, Graduate Counselor
  Amy Feldman, Undergraduate Counselor

Lead technical staff
  Sekar Thiagarajan, Computing Manager
  Bill Lynes, Hardware support

Graduate students (group lunch)

Undergraduates (group lunch)

Tenure track Assistant Professors
  Jeff Bilmes, Vikram Jandhyala, Alexander Mamishev, Rahda Poovendran

Research Assistant Professors
  Tai-Chang Chen, Tim Chinowsky, Mark Holl, Katrin Kirchhoff, Qin Li, Larry McMurchie, Jacob Rosen

Senior faculty members
  Deirdre Meldrum, Scott Dunham, Eve Riskin, Rich Christie, Sinclair Yee, Mari Ostendorf, Dave Alstott, Bob Spindel, James Ritcey, Carl Sechen, Denise Wilson, John Sahr, Dan Daley, Sumit Roy, Scott Hauck, Les Atlas, Blake Hannaford, Mohamed El-Sharkawi

Former faculty member Tom Pearsall

Appendix C: Site visit schedule

UNIVERSITY OF WASHINGTON
The Graduate School

Department of Electrical Engineering Program Review
December 3 and 4, 2001
AGENDA

Sunday, December 2

7:00 p.m.	*Dinner* - Review Committee *Ponti Seafood Grill (3014 3rd North)*

Monday, December 3
Room 403 EE/CSE Building

7:30 – 8:30 a.m.	*Breakfast - Burke Museum Cafe* Howard Chizeck (Professor and Chair)
9:00 – 9:20 a.m.	Howard Chizeck
9:20 – 10:00 a.m.	John Sahr (Professor and Associate Chair, Education) Mari Ostendorf (Professor and Associate Chair, Research)
10:00 – 11:00 a.m.	Undergraduate Program: Rich Christie (Undergraduate Program Coordinator) Amy Feldman (Undergraduate Counselor) Helene Obradovich (Advising Counselor-Lead) Eve Riskin (Undergraduate Research Coordinator)
11:00 – 11:15 a.m.	*Break*
11:15 – 11:45 a.m.	Undergraduate Students
11:45 a.m. – 12:15 p.m.	Senior Staff: Helene Obradovich (Advising Counselor-Lead) Sekar Thiagarajan (Computing Manager)
12:30 – 1:45 p.m.	*Lunch - Faculty Club, South Dining Room (west end)* Yongmin Kim (Chair, Bioengineering) Hank Levy, Gaetano Boriello (Computer Science & Engineering) Maynard Olson (Genome Sciences) Adam Bruckner (Chair, Aeronautics and Astronautics) Paul Hopkins (Chair, Chemistry), Rajendra Bordia (Chair, Materials Science and Engineering)

2:00 – 3:00 p.m.	Graduate Program: Frankye Jones (Graduate Counselor) John Sahr (Associate Chair, Education)
3:00 – 3:30 p.m.	Graduate Students
3:30 – 3:45 p.m.	*Break*
3:45 – 4:30 p.m.	Continuing Education: Eve Riskin, Mani Soma
4:30 – 5:00 p.m.	David Szatmary (Vice Provost for Educational Outreach) Michael Campion (Director, Education at Distance for Growth and Excellence)
5:00 – 5:30 p.m.	Assistant Professors
5:30 – 6:30 p.m.	Facilities Tour
7:30 p.m.	*Dinner –* Review Committee *Nell's Restaurant (6804 E. Green Lake Way North)*

Tuesday, December 4
Room 403 EE/CSE Building

9:00 – 9:10 a.m.	Mari Ostendorf (Associate Chair, Research)
9:10 – 9:30 a.m.	Signal Processing for Information Technology: Mari Ostendorf, Katrin Kirchhoff, Ming-Ting Sun
9:30 – 9:50 a.m.	Genomics, Proteonics, and Health Care Diagnostics: Mark Holl, David Allstot
9:50 – 10:10 a.m.	Complex Networks: Mohamed El-Sharkawi, Jenq-Neng Hwang
10:10 – 11:00 a.m.	Open (possibly discussion with Mark Holl, David Allstot, Mari Ostendorf, Katrin Kirchhoff)
11:00 – 11:15 a.m.	*Break*
11:15 a.m. – 12:00 p.m.	Research Assistant Professors
12:15 – 1:15 p.m.	*Lunch – Catered to Meeting Room*
1:30 – 3:00 p.m.	Review Committee Executive Session

3:00 – 4:00 p.m.	Howard Chizeck (Professor and Chair) John Sahr (Associate Chair for Education) Mari Ostendorf (Associate Chair for Research) Marsha Landolt (Dean and Vice Provost, The Graduate School) John Slattery (Associate Dean, The Graduate School) Debra Friedman (Associate Provost for Academic Planning, Office of the Provost) Denice Denton (Dean, College of Engineering) George Bridges (Acting Dean and Vice Provost, Undergraduate Education) Augustine McCaffery (Assistant to the Dean, The Graduate School)
4:00 – 5:00 p.m.	Marsha Landolt, John Slattery, Debra Friedman, Denice Denton, George Bridges, and Augustine McCaffery