This Strategic Plan for Electrical and Computer Engineering is currently under development. Specific comments on how the plan can be improved are welcome. Please address all comments to Leah H. Jamieson lhj@purdue.edu.
I. FUNDAMENTAL VALUES

Our Leadership

- Our land-grant heritage is celebrated and maintained through engagement with society, preeminent leadership in our research and education, and a large diverse faculty and student body.
- We recognize that preeminence in discovery and education is enhanced through diverse styles of discovery and forms of learning. We value and celebrate diversity in people and programs. Preeminent and visible excellence is our metric.
- Our commitment to student learning and effective education is a national model for innovative excellence.
- The accomplishments of our faculty set the international standard for importance and impact. Within our chosen fields, we lead, not follow.
- Our scholarship makes a difference. It enlightens our students, it changes the research of our peers, and it impacts society.
- We will be recognized as leaders by our peers through major international awards and consistent top-five rankings of our programs.

Our People

- All faculty, particularly young faculty, are encouraged, supported, and enabled to profoundly succeed.
- Our students are enabled to excel.
- Service to others and the institution is expected and recognized.
- Everyone’s contribution to our success is recognized. Success of others is celebrated.
- All faculty, staff, and students share responsibility for supporting our mission.
- We are highly energetic, enthusiastic, and optimistic.

Our Environment

- Our work environment values innovation, productivity, timeliness, quality, dedication, positive impact, and commitment.
- Change is encouraged and a culture of continuous improvement is embraced.
- Freedom of expression is protected and civility is valued.
- The highest standard of ethical behavior is expected and maintained in all our relationships, communications and work, including all research, learning, and engagement.
- Leadership in world-class facilities and support infrastructure is acknowledged as fundamental and necessary for preeminence in discovery and learning.
II. MISSION

Our mission is to educate electrical and computer engineering students from Indiana, the country, and the world so that they have the knowledge, ability, and tools to innovate, excel and lead in their professions. Our faculty discover fundamental knowledge, solve important problems, and develop new applications. We work to benefit society and influence engineering education.

III. VISION

As a national leader in electrical and computer engineering, we will grow to be the internationally preeminent university program in our broad strategic areas of excellence. Our faculty will be recognized as the leaders and innovators, not followers, in their research and teaching. Our scholarship will set the standard for excellence and impact. Our students will learn to excel in their knowledge and understanding, to find and solve important problems, to communicate their insights, and to develop a passion for improving society. Our staff will be exceptionally well-trained, enthusiastic and dedicated. Our alumnae will be leaders in all their activities and will generously support our vision. Facilities for instruction and discovery will be second to none. Our consistent top-five rankings will acknowledge our preeminence.
IV. OBJECTIVES

*Achieve and sustain international preeminence in discovery for strategic areas of electrical and computer engineering.*

**GOAL:** Enhance the quality, diversity, and size of the faculty.

- Aggressively recruit in strategic areas.
- Grow the faculty by 5 FTE per year until the faculty size reaches 100 FTE.
- Provide faculty salaries, benefits, and facilities that are competitive with all of the top 10 ECE departments.
- Increase the number of endowed chair professorships to 30% of the faculty.
- Increase the percentage of female faculty from <10% to >20%.
- Increase the percentage of underrepresented minority faculty to > 5%.

**GOAL:** Successfully recruit the very best and diverse graduate students.

- Enhance graduate student recruiting initiatives.
- Increase the RA and TA stipends to be competitive with all of the top 10 ECE departments.
- Triple the number of RA, full Fellowship, and combined RA-Fellowship offers and reduce the reliance on TA offers and unsupported admissions for recruiting the best students.
- Increase the length of Fellowship offers to cover at least three years.
- Grow endowment allocated for fellowships from $5M to $20M.
- Increase the percentage of female graduate students from <15% to >25%.
- Increase the percentage of underrepresented minority graduate students from <5% to >10%.
- Double the percentage of graduate students that are US citizens.
- Fund faculty to travel to the best international universities to recruit graduate students for ECE.
- Continue to effectively recruit our own undergraduates to graduate school.
- Aggressively recruit graduate students from the best European universities in addition to Asia.
- Maintain our increased selectivity in graduate admissions and increase the percentage of acceptances of those admitted.
- Increase the acceptance rate for full fellowships to > 40%, while enhancing the quality level of the students receiving offers.
- Implement a 5-year combined Bachelors and Masters program.
GOAL: Enable the success of our graduate students.

- Encourage faculty mentoring of all graduate students.
- Provide high quality graduate student office and interaction space.
- Encourage graduate students to take courses and do research in cross-disciplinary areas.

GOAL: Publicize our excellence and preeminence.

- Continuously enhance the ECE web pages in all areas, including those of individual faculty and areas of research.
- Increase Wavelinks frequency from once per year to twice per year.
- Continue targeted mailings to all Deans and ECE/CS Department Heads at least three times per year (ARS, Wavelinks, posters), strategically timed to influence US News rankings.

GOAL: Enhance the research enterprise infrastructure.

- Continuously improve information technology infrastructure, business office, and building services support.
- Double the number of research engineers, research scientists, Post Docs, and visiting faculty.
- Grow the number of support staff, including clerical and business office, proportionally to the growth in faculty size and growth in research expenditures.

GOAL: Enhance the faculty time available for discovery, strategic thinking, development of research centers, and leadership of national research initiatives.

- Reduce the average teaching load through streamlining the curriculum, managing enrollments, growing the faculty size, and hiring appropriate instructors.
- Examine committee operations and structure to save faculty time.
- Employ administrative assistants and clerical staff on research funds.
- Reduce the mandatory AY “buy-out” from 25% to 17% for a one-course-per-semester teaching load.
- Provide positive incentives for significant AY support whenever possible.
- Implement a policy allowing for complete relief from teaching for a semester.
GOAL: Increase research productivity.

- Increase the average research expenditures to $400,000 per FTE faculty.
- Win at least one large (> $2M/year for 5 years) Federal or industrial grant per year.
- Provide incentives to faculty and School for growth in research programs.
- Return an increasing percentage of the F&A (indirect cost) to the School and faculty.
- Obtain approval for the creation of research faculty positions (non-tenure track).
- Double the number of patents filed annually.
- Generate income from IP licensing and develop a policy for use of the income to benefit faculty research.

GOAL: Develop strategic research themes where Purdue will be internationally dominant.

- Identify three to five strategic areas and focus investments in these areas.
- Identify and enable faculty that can lead initiatives in these areas.
- Recognize the importance of interaction and engagement with physical and life sciences.
- Understand the pervasive importance of information technology.

GOAL: Develop a nationally acclaimed research center and facility in information technology, similar to the Birck Nanotechnology Center.

- Develop plans and raise funds for an information technology research laboratory (ITRL) in Computing, Communications, and Commerce with 80,000 square feet of assignable space.
- Strategically hire >10 faculty in the area.
- Obtain at least two major research centers (>2M/year) in the IT area.

GOAL: Provide an environment for young faculty to flourish.

- Encourage senior faculty to teach undergraduate courses at least once per year
- Allow Assistant Professors to teach once per year a graduate research-oriented course
- Rigorously maintain a one-course-per-semester teaching load for Assistant Professors
- Implement a “Faculty Mentoring and Leadership Award” given to an Associate or Full Professor each year for encouraging young faculty and demonstrating leadership among the ECE faculty.
- Consistently make significant investments in startup packages for new faculty (funds and quality space).
- Establish a “Research Excellence Award”.

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GOAL: Increase the number of international awards held by our faculty.

- Facilitate the consistent nomination of existing faculty for international awards.
- Increase the number of National Academy members in ECE from 0 to 10% by 2010.

GOAL: Facilitate courtesy, joint, and adjunct faculty appointments.

- Develop a streamlined and encouraging policy with appropriate incentives for courtesy appointments.
- Work to develop a Graduate School policy that supports cross-disciplinary graduate programs.
- Recruit faculty in areas that span schools and departments.

GOAL: Foster intellectual excitement and enthusiasm for discovery and scholarship.

- Build on the success of weekly graduate seminars by having internationally acclaimed speakers and encouraging enhanced faculty and graduate student attendance.
- Implement monthly ECE-specific faculty colloquia and brown-bag lunches.
- Implement monthly Purdue-wide faculty colloquia and brown-bag lunches in the areas of information technology, photonics and optics, biotechnology, and nanotechnology.
- Create facilities that have space for casual and relaxed interaction and space for “intellectual collisions.” Triple the number of meeting rooms for faculty and students.

GOAL: Provide world-class facilities to enable all the ECE Objectives.

- Double the assignable square feet of space per faculty and per student in order to be comparable to best of the top 10 ECE departments.
- Replace Duncan Annex with a new research and instructional facility, renovate EE, remodel MSEE.
- Complete construction and relocation to the Birck Nanotechnology Center.
- Accelerate office, shared space, and laboratory renovations.
- Provide new modular furniture for all faculty and graduate students.
- Install new partitions to provide quiet and productive space for all graduate students.
- Provide individual offices for all full-time staff and Ph.D. visiting faculty and researchers.
Enable effective learning and national leadership in electrical and computer engineering education.

GOAL: Be a national leader in education delivery.

- Expand the resources and use of electrical and computer engineering based technology including wireless communications, streaming video, instant messaging, broadband networking, and desktop video conferencing.
- Implement a supported standard for asynchronous multimedia instructional delivery.
- Enhance the tele-delivery of ECE courses through CEE.
- Utilize the web for submission of homework assignments and remote access to instructional laboratory instrumentation.
- Encourage innovations in teaching and learning.

GOAL: Encourage the authorship of nationally renowned course textbooks and course materials.

- Allow and encourage “in town” sabbaticals for textbook authorship.
- Provide resources and time for textbook and web-based authorship.
- Encourage innovation in electronic texts.
- Publicize the availability of new textbooks and nationally distributed course materials.

GOAL: Revitalize the electrical engineering and computer engineering undergraduate curriculum.

- Encourage innovation in the ECE 200 and 300 level courses.
- Enhance ECE200 and ECE400 seminar courses.
- Encourage and add incentives for faculty ownership and development of laboratory courses.
- Implement coordinated design in specific sophomore and junior year courses.
- Encourage broader faculty participation in all senior design courses.
- Involve Indiana industry in senior design classes.
- Create student design competitions to encourage creativity.
- Provide faculty summer support, relief from teaching, or TA assistance to develop undergraduate curriculum, instructional laboratories, and integration of design into the curriculum.
- Develop the appropriate balance between the “practical” and “theoretical” components of our curriculum and connect practical examples with theory.
• Reduce the size of 200 and 300 level courses and implement recitation sections.
• Create additional “help room” meeting areas (learning resource centers) for TAs and students to collaborate.
• Create mechanisms for enhancing the time available for curriculum innovation.

**GOAL: Ensure continued excellence in the computer engineering degree program**

• Hire sufficient faculty in core areas to meet increasing student demand for courses.
• Triple the space allocated for computer engineering laboratory courses.
• Hire full-time lecturers to assist with critical introductory and senior design courses.
• Implement separate admissions standards for computer engineering and electrical engineering students, in order to effectively manage enrollment pressures.
• Regulate changes in Majors between EE and Computer Engineering students.
• Obtain assistance from Computer Sciences and Math in teaching select introductory courses, particularly Discrete Math, Data Structures, and Advanced C.
• Enable cross-listing of strategic courses with Computer Sciences and other appropriate departments.

**GOAL: Enable continued success of the EPICS program.**

• Obtain the faculty, staff, and TA resources needed to mentor EPICS teams.
• Triple the space allocated for use by EPICS.
• Publicize successes.

**GOAL: Encourage and enable participation by ECE student organizations in the School’s mission.**

• Provide remodeled space and facilities for HKN, IEEE, IEEE CS, and GSA.
• Include the organizations in strategic planning.
• Incorporate the students in the ABET EC-2000 process.
• Implement a student tutoring program through HKN.

**GOAL: Develop student written, oral communication, and leadership skills.**

• Educate the students as to their need for communications excellence.
• Continue to develop and expand our communications enhancement initiatives.
• Require well written technical reports in laboratory classes.
• Provide opportunities for students to improve their presentation skills in the sophomore year and ensure that sophomore lab TAs are proficient in English.
• Provide professional evaluation of student written and oral communication skills in all senior design courses.
• Establish school-wide procedures and expectations relative to homeworks, laboratory reports, and papers.

**GOAL: Enhance the teaching skills of faculty and teaching assistants.**

• Implement an Engineering wide seminar series on teaching excellence.
• Provide a means for measuring and improving current teaching practices.
• Encourage faculty and TAs to attend short courses and seminars on teaching.
• Encourage faculty to learn from their colleagues and to share and adopt best practices.
• Encourage mentoring and observation of lectures by particularly effective faculty.
• Dedicate at least 10% of the endowed chair professorships to excellence and national leadership in teaching.

**GOAL: Facilitate undergraduate participation in research projects.**

• Grow the available endowment to provide undergraduate students with an opportunity for summer employment in faculty research projects.
• Compile and publicize the availability of summer and academic year research opportunities for undergraduates.
• Develop an evening seminar series for faculty to present research overviews.

**GOAL: Continue to enhance our undergraduate and graduate advising.**

• Implement undergraduate and graduate student electronic newsletters.
• Hire a full-time undergraduate academic counselor to supplement existing staff.
• Enhance the WWW and database technology used in advising.
• Remodel the graduate office.
• Double the space allocated for the graduate and undergraduate offices.
• Encourage student use of advising tools and staff.
• Implement assessment tools (customer surveys of our current students) and continuous improvement for both the undergraduate and graduate offices.
• Reduce the incidents of academic dishonesty among all students.
• Assess the climate perceived by all students in ECE and address the issues raised.
GOAL: Build on the success of the 2001 ABET review.

- Close the assessment loop to achieve continuous improvement.
- Enforce adherence to all in-place procedures, including the completion of assessment forms and documentation of objectives and outcomes.
- Enhance the ECE ABET web pages.
- Share best practices with other Schools and Departments.

GOAL: Develop and implement quantitative assessments of our undergraduate program.

- Implement assessment mechanisms that are effective but not burdensome.
- Use quantitative assessment data to improve the BSEE and BSCmpE programs.
- Track accomplishments of our students after graduation.
- Use ABET EC 2000 to continue to strengthen our learning environment and curriculum.
- Increase the participation of our students in the FE/EIT exam from currently <30% to >50%, track their scores, and maintain a pass rate for ECE students of >95%. (www.ecn.purdue.edu/EIT/)
- Annually improve and distribute senior, recruiter, and alumni exit surveys.

GOAL: Revitalize the instructional laboratory environment.

- Provide software support for all labs and classes that use computer aided instruction.
- Develop an on-line testing environment.
- Implement a laboratory upgrade and staffing 5-year plan.
- Double the space allocated for instructional laboratories and renovate all existing space.
- Engage faculty in improving the instructional laboratories.

GOAL: Enhance the quality of the undergraduate students

- Develop a $5M merit and diversity scholarship endowment to recruit ECE undergraduates to Purdue.
- Increase the percentage of women from 10% to at least 20%.
- Increase the percentage of under represented minorities from 4% to at least 10%.
- Increase the number of National Merit Scholars in ECE.
- Monitor closely the minimum GPA required for entrance to ECE from Freshmen Engineering.
- Aggressively recruit the best students and diverse students from Freshmen Engineering to ECE.
- Begin a “direct to ECE” admission program for the best applicants to Purdue.
• Create an Honors program in cooperation with the new Freshmen Engineering Honors program.
• Provide collaborative study space.

**GOAL: Increase the number of interdisciplinary programs and cross-listed courses**

• Determine which existing graduate and undergraduate ECE courses should be cross-listed or eliminated to reduce duplication with other departments.
• Implement mechanisms for graduate student theses to be supervised by faculty outside of their school or department.
• Lead the campus in developing multi-school discovery and learning initiatives.

**GOAL: Encourage student participation in study and internship abroad programs.**

• Increase the participation from 1% to 20%
• Form a partnership with at least one institution abroad.
• Find faculty advocates.

**GOAL: Enhance student access to faculty**

• Reduce the ECE undergraduate student-to-faculty ratio from 17-to-1 to 10-to-1 through both strict management of enrollments and significant growth in faculty size.
• Eliminate admission for out-of-state undergraduate transfers.
• Rigorously manage the number and quality of undergraduate international students.
• Hire lecturers and graduate instructors to assist where appropriate.
• Increase opportunities for student-faculty interaction in social settings.

**Make a positive impact on society, industry, academia, and the economy through engagement.**

**GOAL: Foster entrepreneurship, corporate interaction, and economic development.**

• Streamline (simplify and expedite) conflict of interest procedures and outside activity requests.
• Enable sabbaticals for entrepreneurial activities and establish release-time strategies for engagement.
• Establish policies that are encouraging and efficient for leaves of absence, particularly regarding personal benefits, IP, tenure, etc.
• Clarify and simplify IP ownership policies during consulting.
• Double the number of annual disclosures and patents generated by ECE faculty.
• Start one new company based on ECE IP each year.
• Participate in INITA activities (Indiana IT association).
• Implement enhanced faculty control of MOUs and contracts for industrial sponsorship of research and IP agreements.

GOAL: Become a national leader in on-line and distance learning

• Develop an on-line Masters in ECE with the tuition generated returned to faculty and ECE.
• Enhance ECE participation in CEE.
• Utilize CEE to foster development and research relationships with industry and alumni.
• Develop focused short courses with the resources generated returned to faculty and ECE.

GOAL: Develop a summer internship program.

• Model the Engineering internship program after the ME intern program.
• Integrate the internship program with the Engineering coop program.
• Increase student participation in the TAP Tele-intern program.

GOAL: Involve industry in ECE’s learning and education mission.

• Encourage industrial sabbaticals, industrial fellows program, and short-term visits from industry engineers and researchers for teaching and research.
• Include Indiana industry in senior design projects.
• Encourage Indiana industry speakers in EE 400 and EE 200.

GOAL: Publicize successful interaction with Indiana industry and organizations.

• Publicize partnerships with companies and universities participating in the 21st Century Indiana Research fund.
• Publicize success of EPICS in service-based learning.
• Publicize and enhance sponsored research from Indiana companies and government labs, e.g., Thompson, Delphi, Raytheon, and Crane (DOD).
• Publicize ECE’s participation in the Technical Assistance Program.
V. PEER INSTITUTIONS

Ten Peer Institutions

- Carnegie Mellon University
- Cornell University
- Georgia Institute of Technology
- Princeton University
- Massachusetts Institute of Technology
- Stanford University
- University of California – Berkeley
- University of Illinois – Urbana
- University of Michigan – Ann Arbor
- University of Texas – Austin

Other Departments with Focused Expertise

[comment: this category may be deleted]

- California Institute of Technology
- Columbia University
- University of California Los Angeles
- University of California San Diego
- University of California Santa Barbara
- University of Maryland
- University of Southern California
- University of Wisconsin – Madison

International Universities with Excellence in Related Strategic Areas

[comment: this category may be deleted]

- Technical University of Munich, Germany
- Technion- Israel Institute of Technology
- Tokyo Institute of Technology, Japan
- University of Toronto
VI. BENCHMARKING

Input Measures

- Undergraduate and graduate class sizes
- Faculty salaries and benefits
- Graduate research and teaching assistant stipends
- 010 funds per FTE student
- Endowment value for ECE
- Number of faculty with endowed Professorships
- Student credit hours per FTE faculty
- Student contact hours per FTE faculty
- Quantity and quality of instructional laboratory space per FTE student
- Quantity and quality of research laboratory space per FTE faculty member
- Office space for all graduate students and staff
- Amount of F&A return to School and faculty
- Number of National Merit Scholars (UG)
- Number of NSF and DOD Fellows (G)
- GREs of graduate students and SATs and high school class rank of undergraduate students
- Size of faculty
- Size and quality of support staff
- Number of teaching assistants
Output Measures

- National Academy and other prestigious memberships
- National and international awards for research and teaching
- Proposal activity for external funding
- Sponsored program (external) funding per FTE faculty
- Number of large interdisciplinary grants and contracts (>2M/year)
- Publications and text books per FTE faculty member
- National awards received by students
- National ranking of graduate and undergraduate programs
- Number of license agreements and patents
- Demography of underrepresented populations [faculty, staff, students]
- Demography of student body
- Percentage of graduate students that are permanent residents or US citizens
- Number of full fellowships offered to graduate applicants
- Percentage of top graduate student applicants that accept offer of admission
- Participation rate of alumni as donors to the school and university
- Number and size of major gifts from alumni, friends, and corporations
VII. STRATEGIC INVESTMENTS

Growth in Faculty and Staff in Strategic Areas ($4.5M annual recurring)

Undergraduate and graduate student demand coupled with significant available research funding provides an opportunity for a substantial growth in the electrical and computer engineering faculty size. The 1983 five-year development plan for the School of Electrical Engineering was for the faculty size to grow to 100 FTE. As of fall 2001, there are currently 66 FTE faculty in ECE, with 3 faculty positions lost summer 2001 due to budget reallocations.

The strategic plan for ECE faculty size remains the same as stated in 1983. Our objective is to attain 100 FTE faculty. This increase will enable ECE to achieve national preeminence in learning for our large student body and to strategically grow in the areas of discovery described below. Due to the changing economy, an opportunity exists to recruit a large number of high quality faculty in the next few years. Our objective is to see an increase of 5 FTE every year for the next seven years.

This growth would occur strategically in three areas:

- Enabling technology for electronic enterprises, including computer engineering, broadband networking, embedded systems, low-power intelligent devices, wireless communications, video and image processing.

- The multidisciplinary intersection of electronic materials, biology, and mechanics, including nanotechnology and systems derived from these areas.

- The interface between optics and electronics, including photonics, electromagnetics, analog and mixed signal circuits, and rf systems.

Growth in Endowment ($75M growth)

The ECE endowment provides the School with the unique resources required to lead the nation in its vision for discovery, learning, and engagement. The goal is for the endowment to exceed $100M. Currently, the value of our endowment is approximately $25-30M (including all portions retained by the campus and Dean dedicated to ECE activities). The $100M endowment should include:

- $50M designated for 30 endowed faculty professorships.
- $25M designated for new instruction and research initiatives, facilities enhancement, cost sharing, and startup packages.
- $25M designated for graduate fellowships, undergraduate research, and undergraduate scholarships.
New Facilities and Remodeling of Existing Facilities  ($60M)

In addition to the Birck Nanotechnology Center, approximately $60M is needed for new ECE facilities and remodeling of existing facilities. The Duncan Annex must be replaced with a facility that will provide instruction and research laboratories, a significant increase in office space, numerous meeting rooms, and space for computer support. The estimated cost of the new structure is $30M. All of the old EE building is in critical need of renovation. The space to be vacated by Materials Engineering in the MSEE building will also require significant remodeling. The projected cost of this remodeling and renovation is approximately $30M.

VIII. RESOURCES TO FUND THE PLAN

The strategic plan will require a significant investment from all possible sources.

Growth in Sponsored Research

The faculty will be responsible for increasing the total annual expenditures for sponsored research so that the average is $400,000/FTE faculty. This represents an increase in total research expenditures from $15M/year to approximately $40M/year for a faculty size of 100. The source of funds will be largely federal and corporate, with a small fraction of state support from programs such as the Indiana 21st Century research initiative.

Growth in Faculty and Staff

Increasing the number of faculty and staff will require a significant recurring investment by the university in funds obtained from the state and from student fees and tuition.

Growth in Endowment

Endowment growth will be due to major gifts from friends and alumni. A small fraction may also be from industry. Responsibility for obtaining the endowment funds will be with the ECE and Purdue development staff, Head, Dean, and President.

New and Remodeled Facilities

This $60M investment will include a combination of state allocations, major gifts from friends and alumni, and industry.
IX. CURRENT STATUS AND TRENDS

Faculty FTE

![Faculty FTE Graph]

Research Expenditures

![Research Expenditures Graph]

Research Expenditures by Agency Type 2000-2001

- NSF: 23%
- NIH: 2%
- NASA: 1%
- DOD: 44%
- Industrial: 21%
- Other Fed: 1%
- DOE: 1%
- Other: 7%

ECE Research Expenditures (1,000s $)

- 93-94: 7,220
- 94-95: 7,649
- 95-96: 9,701
- 96-97: 11,541
- 97-98: 12,547
- 98-99: 13,889
- 99-00: 14,237
- 00-01: 14,620
Proposal Activity

PROPOSAL ACTIVITY

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Not Funded: 29,891 55,332 63,993
Outstanding: 87,423 100
AVG $/Prop: 348,083 516,737 582,476

Undergraduate and Graduate Enrollment

Undergrad | Grad
---|---
Fall 92: 870 | 499
Fall 93: 848 | 535
Fall 94: 830 | 521
Fall 95: 894 | 511
Fall 96: 947 | 470
Fall 97: 999 | 432
Fall 98: 1049 | 473
Fall 99: 1063 | 502
Fall 00: 1144 | 488
Fall 01: 1133 | 449
**Enrollment by Undergraduate Program**

![Bar chart showing enrollment by program and year]

**Student Demographics Fall 2001**

- **1133 Undergraduate Students (not including freshmen)**
  - 1020 male / 113 female
  - 26 African American / 17 Hispanic / 0 Native
  - 306 International

- **162 Masters Students**
  - 135 male / 27 female
  - 3 African-American (1 male / 2 female) / 6 Hispanic
  - 144 International

- **287 Ph.D. Students**
  - 250 male / 37 female
  - 3 African-American / 6 Hispanic
  - 177 International
Sophomores Entering ECE

The diagram shows the number of sophomores entering Electrical Engineering (EE) and Computer Engineering (CmpE) over different semesters from Fall 1995 to Fall 2001. The bars represent the number of students per semester, with different colors for EE and CmpE. The chart clearly indicates the trend and distribution of student enrollment in these fields through the years.