

To: The Engineering Faculty
From: The Engineering Curriculum Committee
Date: August 17, 2009 (original document-March 11, 2009)
Subject: Structure and academic criteria for the College of Engineering Honors Program

The Engineering Curriculum Committee has approved the structure and academic criteria for the College-Wide Honors Program. This action is now submitted to the Engineering Faculty with a recommendation for approval.

PROPOSED:

The intent of the College of Engineering Honors Program (CoEHP) is to provide an umbrella framework to enable a continuous and consistent honors experience for all participants regardless of a student's chosen school. Program participation will be voluntary as well as provide tangible benefits to its participants, the faculty, the Schools, and the College. Students successfully completing the program will have an appropriate notation placed on their academic record.

The CoEHP will operate in accordance with the structure and academic criteria set forth in this document. Qualified students electing to participate will do so through their respective School defined component of the Honors Program. Each School's implementation of the CoEHP will be approved by the faculty of that School, as well as the CoEHP Steering Committee, and have programmatic requirements consistent with the academic criteria described in this document. In addition, the requirements to enter and complete the CoEHP will be consistent, in so far as is possible, with the University Honors Program (UHP).

STRUCTURE:

The CoEHP will consist of:

1. Academic criteria that limits participation to no more than ten percent of the College of Engineering undergraduate enrollment.
2. Two distinct components of the program that work synergistically to attract, retain, and engage a diverse group of high ability students throughout their college experience. The components are:
 - a First-Year component.
 - an Upper-Division component, as specified by each School, which is designed to meet the particular needs of its students and is consistent with the CoEHP academic criteria described in this document.

3. An administrative structure at the CoE level charged with tracking student fulfillment of the academic criteria and program requirements.
4. A CoEHP Steering Committee, which is a Special Committee within the College of Engineering that provides overall governance of the CoEHP in terms of the academic criteria and verification that each School's Upper-Division component of the CoEHP is consistent with the academic criteria described in this document. The committee will act on behalf of the faculty – as such no EFD's will be required when the CoEHP academic criteria are adjusted. Members of the committee shall consist of one representative each from the voting members of the faculties of the schools of engineering, plus the CoEHP Director and the Associate Dean of Engineering for Undergraduate Education or the Dean's designated representative. Members representing the schools shall be elected by ballot by the voting members of their respective faculties. Each member shall normally serve for three years beginning with the start of the fall semester. No elected member shall serve continuously for more than six years. The Dean may invite up to two students (voting or non-voting) to membership.
5. A CoEHP school level mentoring system.
6. An annual assessment that includes, but is not limited to, student recruitment (including quality measures as defined by the University/College), academic progress towards degree, retention within the University/College, and cumulative GPA, by major (intended or actual), sex, and ethnicity.

ACADEMIC CRITERIA:

Each School's Upper Division component will be: approved by the faculty of that School , the CoEHP Steering Committee, and function under the umbrella structure of the CoEHP. Said component will have academic requirements consistent with those specified in this document or as adjusted by the CoEHP Steering Committee in the future. Schools may choose to have requirements that exceed those defined by the CoEHP as long as such requirements are consistent with the CoEHP framework.

The CoEHP academic requirements:

1. Entry:
 - First-Year Component – eligibility for first semester first-year students will be based on, but not limited to, high school metrics, standardized test scores, and/or honors merit awards. Beginning first-year students not meeting the entry requirements can be admitted to the program by appeal to the Dean of Engineering (or his/her designee). The CoEHP Steering Committee will establish first-year first semester entrance criteria for a given admission

year^{*}. Eligibility for first-year students after the first semester will be based on the CoEHP required grade-point-average (GPA).

- Upper-Division Component – eligibility for students in the Schools of Engineering will be based on the CoEHP required GPA (or the School’s designated GPA if it is more restrictive) as well as the ability to complete programmatic requirements by graduation.
2. GPA – Participants must maintain the minimum eligibility CoEHP GPA (or their School’s designated GPA if it is more restrictive) to be in good standing. The CoEHP Steering Committee will establish the minimum eligibility GPA for a given admission year^{*}. Students falling below required eligibility GPA will be placed on Honors probation. Students on Honors probation will have one semester (excluding summer sessions) to re-establish their eligibility. Failure to re-establish eligibility will result in the forfeiture of all rights and privileges afforded CoEHP participants. Rights and privileges may be reinstated once eligibility is re-established.
 3. Discipline Specific Honors Points – a minimum of 9 honors points must be earned in a student’s chosen field of study. Each School’s Upper-Division component will designate how this requirement may be satisfied using the guidelines provided in this document.
 4. Honors Seminar – Participants are required to complete the sophomore and junior Honors Seminar, course sequence offered by the CoEHP. If the seminars are not available, the School, with the approval of the CoEHP Director, may waive all or part of this requirement.
 5. Research/Design Experience – Participants must complete a significant research or design experience that results in a public scholarly activity. This requirement is intended to be fulfilled on top of a participant’s normal graduation requirements. However, an individual School may elect to allow students to count this experience as a non-core technical elective (i.e., an experience which is in addition to any specifically required courses).
 6. Honors Completion – To graduate with an Honors designation, participants are required to earn a minimum of 24 honors points, as designated by their School’s Upper-Division component, and have the CoEHP required GPA (or their School’s designated GPA if it is more restrictive).

* For the purpose of this document “Admission Year” refers to the year a student is admitted to the University.

HONORS POINTS:

Each School's Honors Program will designate the method by which Honors points can be earned within their program using the following framework:

1. Courses – 1 Honors Point will be earned for each credit hour associated with any course designated by a School's Honors Program to satisfy Honors credit. Such courses may, or may not, be used towards graduation requirements as defined by the School. These include:
 - Any Honors course offered at Purdue University;
 - Any 500 level course;
 - Honors contracting within a non-honors course. The CoEHP office will approve contracts to ensure a systematic implementation of honors contracting. (see Supporting Documentation for more details);
 - Take a combination of courses specifically designed/designated for Honors students; or
 - Honors strategic initiative courses (defined by the College of Engineering).
2. Honors experiences – 1 Honors Point will be earned for each credit hour associated with the experience. Participants are limited to a maximum of 3 points through approved honors experiences (e.g., study abroad, special work experiences).
3. Research/Design Experiences – 1 Honors Point will be earned for each credit hour associated with the experience. Participants are limited to a maximum of 6 points of research/design non-core technical elective experience.
4. As designated by the CoEHP Steering Committee.

Raymond Cipra
Chair
Engineering Curriculum Committee

Supporting Documentation

RATIONALE:

The purpose of the college Honors Program is to provide students, who have exhibited a strong potential to be academically successful, a broader and more enriched educational experience. In order for such a program to have a positive impact on the individual participants, the faculty, and the College of Engineering it should:

- be composed of a self-selected group of participants who meet a minimum eligibility requirement;
- have visible and tangible benefits to its participants;
- have consistent and specific requirements in order to accomplish the desired student outcomes, regardless of a student's chosen School, for which all participants can be held accountable; and
- be vertically integrated in order to build a community of scholars that are engaged throughout the student's entire four year program; and
- serve as a potential means of "pipelining" top students towards graduate school.

For several years, work has been underway to construct a framework for an Honors Program that both students and faculty could support. During that time, input has been solicited from all individual School Heads, each School's Curriculum Chair, the president of each School's Honor Society, individual faculty from across the college, and students in the First-Year Honors Program. In addition to soliciting input from within the college, an examination of Honors Programs at our peer institutions was also conducted (see below).

- A vertically integrated Honors Program would be desirable to both the Schools and the students.
- Because it is anticipated there will be varying numbers of student participants from each School, a common "umbrella" program could potentially better serve to accommodate this group of students with special needs, as well as point them toward a graduate career.
- A general framework should be established regarding program requirements. Each School would then use the framework to tailor their own specific program to meet individual needs. Having this framework will also enable recruiters to describe what an "Honors" experience can be for a student coming into engineering. This has been a sore point to both students and their parents.
- Students would be able to enter the program at a point other than their freshman year.
- It would be preferable that no additional workload be placed on the individual Schools with regard to administering said program.
- There needs to be tangible and visible benefits to the students.
- Participation in an honors program would not lengthen a student's undergraduate program.

BENEFITS:

To the Students:

- Build community with other high-potential students;
- Targeted opportunity to build a portfolio of experiences that will make them more competitive for high profile awards;
- Broader and more enriched educational experiences;
- Increased skills and awareness of research and the affordances such experience can have towards future career decisions ; and
- More personalized mentoring from faculty and graduate students.

To the Faculty:

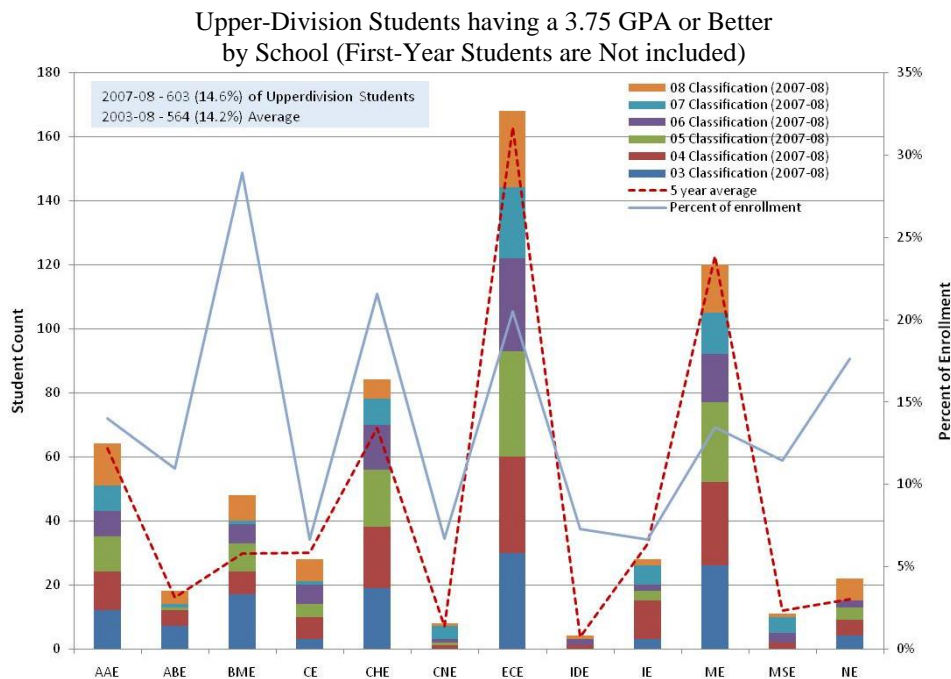
- Opportunity to engage high-performing students in experimental courses and undergraduate research; and
- A potential means of “pipelining” top students towards graduate school.

To the College:

- Recruitment tool to attract high quality students;
- A facilitated way to create interaction with faculty and industry;
- A synergistic opportunity for students to obtain high profile awards, which will provide recognition both to themselves and the College.

DATA TRENDS:

The following data is provided to provide some insight as to how many Upper-Division students would “typically” be eligible to participate from each School in the CoEHP based upon a minimum GPA requirement,. The CoEHP Steering Committee will establish the minimum eligibility GPA for a given admission year



BENCHMARK INSTITUTIONS:

The scope of honors programs at our peer institutions as well as their basic program requirements are shown in the table below:

University	Program Scope	Entry Requirements	Sustaining Requirements	No. of Participants
Cornell Univ.	D-limited ⁱ	- Junior: ≥ 3.5	Maintain ≥ 3.5	110
Georgia Tech	D-limited ⁱ	- Sophomore: ≥ 3.5	Maintain ≥ 3.5	70
Penn State	U ⁱⁱ	- Freshman: SAT ^{iv} ≥ 1350 plus	Maintain ≥ 3.3	1500
Stanford	D-limited	-Application	Maintain ≥ 3.5	10
Texas A&M Univ.	U ⁱⁱ , C ⁱⁱⁱ	- Freshman: SAT ^{iv} ≥ 1350 and hs rank top 10% - Sophomore, ≥ 3.6	Maintain ≥ 3.5	300
Univ. of Arizona	U ⁱⁱ	- Freshman: GPA, SAT ^{iv} scores. - Completed 12 hrs and ≥ 3.5 .	Maintain ≥ 3.5	4000
UC Berkeley	D-limited ⁱ	- Junior: ≥ 3.7	Maintain ≥ 3.7	40
UC Davis	U ⁱⁱ , D-limited ⁱ	- Freshman: Required essay, GPA ≥ 3.5 .	Complete Honors Challenges	125
Univ. of Illinois	U ⁱⁱ , C ⁱⁱⁱ	- Freshman: ACT ^v _c ≥ 33 - Sophomore ≥ 3.30 , higher for select departments.	Maintain ≥ 3.3 , or match entry GPA	125
Univ. of Michigan	C ⁱⁱⁱ	- Sophomore ≥ 3.6 early admission possible, interview process.	Maintain ≥ 3.4	102
Univ. of Texas	U ⁱⁱ , C ⁱⁱⁱ	- Freshman: Application - Sophomore ≥ 3.5 must have > 60 hrs to complete	Maintain ≥ 3.5	700
Univ. of Wisconsin	C ⁱⁱⁱ	- Freshman: Application	Maintain ≥ 2.5 in hc's	80

i There are only a few departments within engineering that have a recognizable honors track.

ii There is a structure in place at the university level to support an honors program

iii There is a college level honors program in place. However, it does not imply that the effort is centralized nor that all departments within the college participate.

iv Or equivalent ACT composite score

v Or equivalent SAT total score.

C College wide program

D Department program

U University wide program

Specific components of each peer institutions honors program as well as how each program is administered was difficult to assemble. However, the table shown below provides a general perspective for each school:

University	Components	Administration
Cornell Univ.	Students must petition to join the program. Only open to Juniors and Seniors. Participants must complete 9 credits of upper division course work to include research or a teaching experience. Honors is actually denoted on official transcript and printed on diploma. http://www.orie.cornell.edu/orie/academics/undergrad/programdescription/honors.cfm	Administered through Operations Research and Information Engineering.

Georgia Tech	Assigned to a research advisor who is active in research in the student's area of interest. Participants will be expected to participate in research and sign up for at least one hour of Undergraduate Research for at least three terms before completing the BS component of their degree. Are given preference in the assignment of AE Undergraduate Research Fellowships. Participants will make at least one presentation on their research work at a national conference, student conference, seminar, or brown bag lunch before completing their BS degree. The use of up to 6 hours of graduate course work in the major discipline towards both the undergraduate and the graduate degrees is based on the provisions listed under the title "Graduate Course Option" in the GT catalog. http://www.ae.gatech.edu/academics/undergraduate/semester/honors/index.html	Administered through the School of Aerospace Engineering.
Penn State	Take 7 honors credits both freshman & sophomore years; take 14 honors credits in junior/senior block. http://www.esm.psu.edu/programs/undergraduate/esc/	Central dean & staff of 15. Departments submit course offerings to central office for approval. Must be taught by tenured faculty.
Stanford	Submit an application by Autumn Quarter of the senior year signed by the thesis advisor and second reader (one must be a member of the EE Faculty) enclosing the thesis proposal. Must maintain a grade point average (GPA) of at least 3.5 in Electrical Engineering Courses. At least 10 units of EE 191. These units need to be letter graded. Submit two final copies of the Honors thesis approved by your advisor and second reader. Attendance and poster or oral presentation in the Electrical Engineering Honors Symposium held at the end of Spring Quarter. http://ee.stanford.edu/undergrad_honors.php	Administered through Electrical Engineering program.
Texas A&M Univ.	18 credits of honors courses, 2 seminars, 3-hour research project. http://www.tamu.edu/esp/membership.htm	Administered from the Dean's office in College of Engineering.
Univ. of Arizona	Must complete 30 credits of honors at any level and can be taken in gen ed, major, minor, internship, including 6 credits of thesis/capstone. Courses offered in every department. http://www.honors.arizona.edu/ http://www.engr.arizona.edu/students/current/honors.html .	Central dean & staff of 12. Designated honors advisors in every department. Departments control course offerings.
UC Berkeley	At least four units of supervised Independent Study, EE or CS 199, taken on a P/NP graded basis. A breadth requirement, consisting of at least 3 upper division courses (totaling at least 10 units) taken for a letter grade, outside the College of Engineering. The breadth requirement courses may be taken in a single department or in related departments if they address a unifying theme. In the case of the latter, selection of these courses must be approved by the EECS Honors Program Director. http://www.eecs.berkeley.edu/Programs/honors.html	Administered from Electrical Engineering and Computer Sciences program.

UC Davis	<p>First-Year Students take two honors challenge sections or honors courses, and one honors seminar. Second-Year Students have the option of taking two honors challenge sections or honors courses, and one honors seminar, OR one honors challenge section or honors course, one honors contract, and one honors seminar. Third-Year Students must complete two honors contracts and a third-year honors seminar. Fourth-Year Students must complete a year-long project. Students who satisfactorily complete the Davis Honors Challenge receive transcript notation for each academic year of participation.</p> <p>http://dhc.ucdavis.edu/html/</p>	Administered through the Davis Honors Challenge office.
Univ. of Illinois	<p>For the upper class program each student will work with a departmental honors advisor to develop an individualized honors contract.</p> <p>http://illinois.edu/academics/honors/colleges/engineering.html</p>	Administered through both the Campus Honors Program and the Engineering College Honors Program.
Univ. of Michigan	<p>5 year program and you come out w/ B.S. and M.S. in engineering. Take 12 credits of humanities/social science, 12 credits in business, 2 semesters of 2nd year language, thesis. Instead of completing a thesis students can complete a hands-on industry project through the Tauber Institute for Global Operations (joint program between UM Ross School of Business & UM College of Engineering).</p> <p>http://www.engin.umich.edu/egl/</p>	Administered through the International Programs in Engineering office.
Univ. of Texas	<p>Up to 10% of first-year students accepted; "the more you put in, the more you get out." Research seminars 4 times per year; no requirements for number of honors courses or credits, only GPA.</p> <p>http://www.engr.utexas.edu/academics/honors/</p>	Administered through College of Engineering Student Activities office; faculty honors advising group.
Univ. of Wisconsin	<p>Completion of at least 24 credits in Honors courses with grades of B or better; completion of at least 6 honors credits humanities, 6 social sciences, and 6 credits in natural sciences, with no more than 6 credits in any single department; Completion of at least 15 Honors credits in courses with the timetable designation "H" or "!" (special honors sections)</p> <p>http://studentservices.engr.wisc.edu/classes/honors.html</p>	Administered through the College of Engineering.

DOCUMENTATION ON HONORS CONTRACTING:

The following sections are intended to provide a general understanding of what “Honors Contracting” would entail should a school choose to use this as a method for participants to earn honors points.

I. HONORS CONTRACT BEST PRACTICES

An Honors Contract allows undergraduate students to incorporate honors elements into a regular, non-honors course. The addition of honors elements creates what is referred to as a “Honors Contract Course.” The well-designed Honors Contract Course expands upon and satisfies more rigorous standards than those specified in the non-honors syllabus. The time required for completing honors elements should remain commensurate with a comparable honors course having the same number of credits.

- When formulating an Honors Contract, the student, in consultation with the faculty instructor, should seek to delve more deeply into methodology, structure, and/or theory, or propose and research more sophisticated questions. Simply increasing the volume of work required or the hours spent on routine assignments does not establish an Honors Contract Course. The student and faculty instructor are highly encouraged to develop as detailed as possible description of required research, readings, assignments, etc. Additionally, the student and faculty instructor should establish specific deadlines for staged completion of the honors elements.
- It is advisable for the student to meet with the faculty instructor on a regular basis throughout the semester to obtain guidance and report progress toward completing the honors elements.
- The student’s grade in an Honors Contract Course is to reflect the student’s work associated with regular course assignments and exams detailed in the course syllabus. Honors credit is awarded separately from the course grade. (In order for honors credit to count toward fulfilling graduation requirements the student must earn a “B” or higher in the course AND satisfactorily complete the honors elements specified in the honors contract.)
- If at any time a student feels that he/she will be unable to complete the honors elements specified in the Honors Contract, the student is urged to immediately consult with the faculty instructor and the honors program coordinator to determine his/her options.

II. Honors Contracting Procedure

1. A student enrolled CoEHP obtains the Honors Contract Form from the CoEHP office or downloads the form from the Website.

2. The student approaches a faculty instructor and asks if the instructor is willing to supervise an Honors Contract project.¹
3. Having agreed to supervise an Honors Contract project, the faculty member and student discuss and decide upon a project. A detailed description of the project is appended to the Honors Contract Form.
4. The completed Honors Contract and project description is returned to the CoEHP office on or before the Friday of the 4th week of classes.
5. The CoEHP and the School Honors Program Coordinator next approve or deny the contract. If the course on the contract falls outside of Engineering, the CoEHP will seek an additional approval from the appropriate school/department head or his/her designee. A printed copy of an e-mail approval is acceptable. The approval must be attached to the Honors Contract.
6. Approved contracts are submitted to the Office of the Registrar to create the Honors designation for the honors-contracted course. The Office of the Registrar modifies the student's schedule, changing the regular course to an honors-contracted course.
7. A letter grade, dependent only on an honors student's work associated with regular course assignments and exams, is reported on the regular grade roster. ***A student must satisfactorily complete the Honors Contract project AND receive a grade of "B" or higher in the course in order to receive honors points.***
8. If a student does not complete the Honors Contract portion of the course even though he/she appeared to be making acceptable progress up to the 9th week of classes, or if the student's name appears on an incorrect grade roster, a Form 350 must be filed with the grade roster or as soon as possible after the posting of grades. The Form 350 requires signatures of both the course instructor and an honors representative with a notation to either "delete" or "add" the honors designation for the course on the student's record.

¹ Graduate Teaching Assistants are not permitted to sponsor Honors Contracts. Faculty instructors have the right to decline supervision of an Honors Contract for a variety of reasons, including, for example, time limitations and lack of resources.