PROPOSAL

The College of Engineering proposes a three-year pilot program to admit qualified students at whatever time they meet academic requirements in the catalog, without waiting to complete 56 credits.

At the end of every semester, the records of all freshmen and sophomore engineering students would be reviewed to determine if they

- have declared a specific engineering major (other than Engineering – No Preference),
- have completed core courses or equivalents (MTH 132 and 133, PHY 183, CEM 141 and a computing course specific to the major; CEM not required for computer science)
- and have the required combined cumulative/technical GPA for admission to that major.

If so, they will receive a letter admitting them to the college. If not, they will receive a letter indicating that their decision remains pending for major selection, course completion or GPA attainment, and that they will be reviewed again every semester until they reach 56 credits, when they must be admitted to a degree-granting college.

This system will be referred to as **"Admit When Ready" (AWR)**

We believe that this system will improve the recruiting of quality students, their motivation to succeed, selection of final major, time-to-degree, and eligibility for co-op and internship employment in their field, without disadvantaging any student. The pilot has been endorsed by the Engineering Undergraduate Studies Committee (EUSC), representing our departments and degree programs.

BACKGROUND

- Michigan State University admits freshmen without respect to intended major. But it also requires all students, even those with majors in open enrollment "core" colleges, to wait until 56 credits to be admitted to a degree-granting College.

- Certain colleges and majors are enrollment-limited after 56 credits in order to balance student numbers with the resources required to provide curricular components. These limitations began at MSU in 1978 by permitting the College of Engineering to limit enrollment, but not until students attained 56 credits. Subsequently, other professional programs were granted approval to impose a second-level admission procedure.

- Since 1978, Engineering has based admission on completing a set of core courses, and attaining a weighted cumulative/technical GPA. The *technical GPA* is calculated based on all mathematics, science and engineering courses taken, and then the cumulative and technical GPA are themselves averaged. In the resulting cum/tech GPA, grades in technical courses outweigh those in other courses by about 3 to 1. The required cum/tech GPA for admission to various majors is set by the college to maintain resources in balance, and is reviewed and adjusted each year. For a large majority of our students, that GPA criteria is typically 2.9 or 3.0.

What are the disadvantages of the current system?

- While the cum/tech GPA is intended to predict technical competence, students reach 56 credits with a widely varying set of completed courses in their GPA. A typical freshman starting in Calculus I can complete the required core in two semesters, but then must wait another year

for an admission decision. Most students can complete the core by three semesters. The additional wait for a decision can lead to a number of strategies and gaming.

- For a student to whom eventual admission is more important than progress-to-degree and the cost of college, the system creates an incentive to defer 200-level engineering courses and take unneeded electives to keep his or her GPA above 3.00. For a 3.02 student who takes classes that best progress him or her toward their goal of being an engineer, one or two grades below 3.0 can "doom" the student, requiring him or her to find another engineering school after two years invested at MSU. Some students who may be heading for a 2.0 or 2.5 in a sophomore course deliberately fail the final, or even pressure faculty to lower their grade below 2.0, to permit a repeat. These students understand the admission game and may ultimately "win" it. On the other side of this coin, we have students who have been ingrained with a strong philosophy to "hang in and not be a quitter." Doing so can lead to their ultimately "losing."

- Hence, admission at a point in the credit count (the present case), rather than a point in the curriculum (as proposed) is an inherently unfair scheme that can compare apples to oranges. If the required cum/tech GPA for admission is 3.00, a student can have a 3.05 and a "light" set of courses and be automatically admitted; another student can have a more robust course portfolio, but be at 2.95 and be denied. Our students are bright and resourceful, and learn to play any game we contrive. AWR would change the rules to reward early success, rather than reward reaching the required GPA at a certain credit point, which is often a year after completing required core courses.

- To employers, engineering students are a corporate investment. A number of our employers seek to hire engineering students early in their collegiate careers, to permit early recruitment and co-curricular development of job skills. The late admission point at MSU puts employers at risk of hiring students who will ultimately not graduate. Our employer stakeholders favor affirming students' majors early.

- From a resource viewpoint, we run 200-level courses at sometimes substantially larger numbers than 300-level courses; students who are concerned with degree progress need to take these on speculation that they will be admitted. While the pilot program is not proposing to restrict access to 200-level courses, we expect that giving our freshmen and sophomores decisions or feedback at the end of every semester will lead to some earlier movement to other majors and lead to some reduction in resource demands and class sizes. These resources can be redistributed within the program to improve overall quality.

- A most unpleasant facet of the current system is the emotional anxiety related to waiting and possibly being denied admission at such a late date, which can even occur during the winter break of the third year. Some students are over-optimistic, always believing that their 2.5 GPAs will become 3.5s in the next semester. Students and families are devastated when finally faced with a change in course after investing two or more years here. Earlier decisions, with reviews every semester, will send a strong message to focus on the academics needed for success or to start earlier consideration of other majors in which success will be found. This should also be helpful to the other MSU colleges where some will find new majors, as the opportunities for advising and program planning will be shifted earlier

- We are at a disadvantage relative to peer institutions in recruiting strong students from high school, especially those with ACT scores of about 27 to 30. These students can attend a wide range of other engineering schools, without the need to wait so long for an admission decision. Coming to MSU is viewed as risky.

Admit when ready would motivate students to do their best as early as possible. For those who do not, and for those for whom engineering may not be the appropriate choice of major, it would send

meaningful messages much earlier, before students become deeply invested and perceive that it is too late to change majors. Those who get off to a poor start, but then find their way to success, will continue to have the opportunity for admission when they are ready.

ADDRESSING SOME CONCERNS

What information is needed to make good admission decisions, and when does it become available?

In the summer of 2004, we made a detailed study of 840 students who were new engineering freshmen in Fall 2000. For 680 of these students, we had "complete" records, defined as grades in the required core courses, and GPA data through 56 credits. The database permitted us to do a variety of statistical analyses, but the most meaningful showed the following:

- The correlation coefficient between GPA at 28 credits and GPA at 56 credit was 0.87. Restated, the GPA after about a year is a very strong predictor of the GPA after about two years. Strong students mostly stay strong, and vice versa. We get little additional information on student quality and performance by waiting an additional year. To delay admission decisions an additional year is causing us to make all students wait while we make ourselves more certain of the capabilities of a few.

- While no single course is a good predictor, Calculus II is the strongest. In two to three semesters, most students can complete our required core, including Calculus II. In addition to providing us good predictability, completing these courses also gives students a good idea of the expectations of the engineering curriculum.

What about short-term resource/enrollment impacts?

As some of the students in the pilot program will enroll for 200 and 300 level classes earlier, or carry larger credit loads, we expect a temporary, short-term increase in class sizes. This will return to an equilibrium condition in a few semesters. We stand ready to staff these increases, and the recent downturn in freshmen and sophomore enrollments will also temper them a bit.

Some engineering freshmen start below Calculus I, including remedial mathematics (MTH 1825). These students take additional time to complete the required core. If we are admitting students earlier, won't the "seats be filled" before these students are "ready?"

No, and this is an important point of the AWR proposal. At any given time, those students who have completed the core move on to the next successor courses. Those who have been admitted earlier will be progressing in higher courses, and students who are now "ready," whether after one, two, three or four semesters, are considered for admission. Every student will be evaluated at the time he or she reaches a common point in the curriculum.

Those who currently start in MTH 1825 typically require a minimum of five semesters to complete MTH 133, and this already puts them into the situation of being denied admission to engineering, changing to an "open" major, and then re-applying to engineering later. While that is a topic for another time, the university might consider changing the 56 credit admission point to permit "admitting when ready" at a later point, so that those starting in remedial situations are not set up to be denied admission to their college before they can possibly complete the admission requirements. This again points to the need to evaluate students at a common point in the curriculum, not the credit count.

Implementation issues: MSU has a number of things tied to reaching junior standing, including the physical location of files, cost of tuition, who signs grade changes, who sends recess and dismiss letters, etc. How will these be affected?

During the pilot, little would change regarding the administrative issues above. Simply stated, reviews will be made every semester, but the admission to the college would be recorded in SIS earlier. Admitted students will know their admission decision is behind them, and they will be granted access to restricted courses as soon as they meet the prerequisites. We have identified three minor considerations related to implementation issues:

- For all engineering freshmen and sophomores wishing to change majors, we request that major changes be recorded in SIS by engineering staff and not by UUD. This will ensure that a student admitted early to one major does not change to another without having the required courses or GPA for the new major.

- Because class and admit status are currently coupled, courses are restricted in SIS by the students' class ("open only to juniors and seniors in the College of Engineering") rather than by admit status. In the short term, the college will have to make it clear that we will write overrides for any admitted freshmen and sophomores who need access to 300-level classes.

- In reviewing students for admission, we will need to implement some checks to avoid "tricks," such as taking all but one course at a community college. For that specific case, we will require a minimum of 12 MSU credits and a minimum of 6 MSU technical credits.

We may further find a few other implementation issues, and that is one of the reasons to pilot the process before finalizing catalog language.

How will prospective students get the message that they can come to MSU and not need to wait two years for admission to engineering?

We will develop a communications plan involving the Office of Admissions and engineering advisors, and provide information in print materials, web sites, group presentations, and prospect visits.

ASSESSMENT

How will the success of the pilot program be measured?

In principle, we will track metrics such as

- credit load, which is an indicator of time-to-degree, and

- ACT scores of admitted freshmen, which is an indicator of recruiting.

In practice, these are but a few of many metrics that can be derived from SISINFO extracts, and we will build cohort data files that track all likely data of interest, including courses, grades, credit load, major, gender and ethnicity. This will permit us to study any questions that may be posed during the pilot.

There will also be considerable anecdotal information from admissions counselors and engineering advisors, as students change their strategy from protecting their GPA to early excellence.