

## **Appendix 4-E**

### **Cross-sectional Cohort (PIE) Surveys and Focus Group Questions**

Cross-sectional Cohort survey fall 2005

Cross-sectional Cohort survey spring 2006

Cross-sectional Cohort Focus Group Interview Guide

# Academic Pathways Study Fall'05 Survey

## Large Midwestern Public University (LMPub)

Please click the SUBMIT button only after you have completed the survey. For best viewing results, please maximize your browser window.

1. What is your expected year of graduation from college?

- ☐ 2005
- ☐ 2006
- ☐ 2007
- ☐ 2008
- ☐ 2009
- ☐ 2010
- ☐ 2011
- ☐ 2012 or later

2. Do you intend to complete a major in engineering?

- ☐ Definitely Not
- ☐ Probably Not
- ☐ Not Sure
- ☐ Probably Yes
- ☐ Definitely Yes

3. What do you intend to major in?

- ☐ Aerospace engineering & mechanics
- ☐ Astrophysics
- ☐ Bio-based products engineering
- ☐ Biomedical engineering
- ☐ Biosystems & agricultural engineering
- ☐ Chemical engineering
- ☐ Chemistry

- ☐ Civil engineering
- ☐ Computer engineering
- ☐ Computer science
- ☐ Electrical engineering
- ☐ Geological engineering
- ☐ Geology
- ☐ Geophysics
- ☐ Materials science & engineering
- ☐ Mathematics
- ☐ Mechanical engineering
- ☐ Physics
- ☐ Statistics
- ☐ Arts & humanities
- ☐ Education
- ☐ Social Science
- ☐ Other non-engineering

4. If you intend to DOUBLE MAJOR, what is the second major you intend to complete? (Mark N/A if you do not intend to double major.)

- ☐ N/A
- ☐ Aerospace engineering & mechanics
- ☐ Astrophysics
- ☐ Bio-based products engineering
- ☐ Biomedical engineering
- ☐ Biosystems & agricultural engineering
- ☐ Chemical engineering
- ☐ Chemistry
- ☐ Civil engineering
- ☐ Computer engineering
- ☐ Computer science
- ☐ Electrical engineering
- ☐ Geological engineering
- ☐ Geology

- ☐ Geophysics
- ☐ Materials science & engineering
- ☐ Mathematics
- ☐ Mechanical engineering
- ☐ Physics
- ☐ Statistics
- ☐ Arts & humanities
- ☐ Education
- ☐ Social Science
- ☐ Other non-engineering

5. Do you intend to practice, conduct research in, or teach engineering for at least 3 years after graduation?

- ☐ Definitely Not
- ☐ Probably Not
- ☐ Not Sure
- ☐ Probably Yes
- ☐ Definitely Yes

6. If you are thinking of going to graduate school NOT IN ENGINEERING, please mark your most probable area of study. Otherwise, mark N/A.

- ☐ Business
- ☐ Education
- ☐ Medicine
- ☐ Law
- ☐ MA/Ph.D.
- ☐ Public Service
- ☐ Other
- ☐ N/A

7. We are interested in knowing why you are studying engineering now. Please

indicate below the extent to which the following reasons apply to you:

	Not a Reason	Minimal Reason	Moderate Reason	Major Reason
Technology plays an important role in solving society's problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers make more money than most other professionals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My parent(s) would disapprove if I chose a major other than engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers have contributed greatly to fixing problems in the world	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers are well paid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineering is an occupation that is respected by other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My parent(s) want me to be an engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An engineering degree will guarantee me a job when I graduate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers are creative problem solvers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A faculty member, academic advisor, teaching assistant or other university affiliated person has encouraged and/or inspired me to study engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A non-university affiliated mentor has encouraged and/or inspired me to study engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Please indicate how strongly you disagree or agree with each of the statement:

	Disagree Strongly	Disagree	Agree	Agree Strongly
I prefer studying in a group to studying by myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer working as part of a team to working alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get along well with others in study situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am a collaborative person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Creative thinking is one of my strengths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am familiar with what a practicing engineer does	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am skilled at solving problems that can have	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

multiple solutions 

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9. Rate yourself on each of the following traits as compared to your classmates. We want the most accurate estimate of how you see yourself. (Mark one in each row.)

	Lowest 10%	Below Average	Average	Above Average	Highest 10%
Self confidence (social)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leadership ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public speaking ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Math ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Science ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to apply math and science principles in solving real world problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Business ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to perform in teams	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Critical Thinking skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. How important do you think each of the following skills and abilities is to becoming a successful engineer? (Mark one in each row.)

	Not Important	Somewhat Important	Very Important	Crucial
Self confidence (social)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leadership ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public speaking ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Math ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Science ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to apply math and science principles in solving real world	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

problems									
Business ability	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		
Ability to perform in teams	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		

11. Please rate your satisfaction with this institution on each of the aspects of campus life listed below. If you do not have experience with this aspect, mark N/A.

	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied	N/A
Quality of instruction by faculty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality of advising by faculty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Availability of faculty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality of instruction by teaching assistants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality of advising by teaching assistants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Availability of teaching assistants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

12. Please rate your satisfaction with each of the following at this institution. If you do not use the service or facility, mark N/A.

	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied	N/A
Computer facilities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Libraries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Classrooms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tutoring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Academic advising	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Laboratories	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

13. Since the beginning of the Fall term, how often have you taken courses which required your engagement in individual and/or group projects?

- ☐ Never
- ☐ Rarely
- ☐ Occasionally
- ☐ Frequently

14. Think about the engineering classes you have taken since the beginning of the Fall term (engineering, math, and science classes). Indicate how often you:  
(Mark N/A if you have not taken any engineering related classes.)

	Never	Rarely	Occasionally	Frequently	N/A
Came late to engineering class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skipped engineering class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turned in engineering assignments that did not reflect your best work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turned in engineering assignments late	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thought engineering classes were boring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. Think about the liberal arts classes you have taken since the beginning of the Fall term (not engineering, math, or science classes). Indicate how often you:  
(Mark N/A if you have not taken any non-engineering related classes.)

	Never	Rarely	Occasionally	Frequently	N/A
Came late to liberal arts class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skipped liberal arts class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turned in liberal arts assignments that did not reflect your best work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turned in liberal arts assignments late	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thought liberal arts classes were boring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. How often have you interacted with the following people since the beginning of the Fall term (e.g. by phone, e-mail, Instant Messenger, or in person)? (Mark



one for each item.)

	Never	1-2 times per Term	1-2 times per Month	Once per Week	2-3 times per Week	Daily
Faculty during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Faculty during office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Faculty outside of class or office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching Assistants during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching Assistants during office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching Assistants outside of class or office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. What portion of the courses you have taken since the beginning of the Fall term have been taught primarily by graduate students?

- ☐ None  
☐ Very little  
☐ Less than half  
☐ About half  
☐ More than half  
☐ All or nearly all

18. Since the beginning of the Fall term, what portion of your classes used the following teaching methods?

	None	Very little	Less than half	About half	More than half	All or nearly all
Lectures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Team Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seminars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

19. To what extent have your courses required your engagement in individual and/or group projects?

- ☐ Too Few
- ☐ Enough
- ☐ Too many

20. Some people are involved in non-engineering activities on or off campus, such as hobbies, civic or church organizations, campus publications, student government, social fraternity or sorority, sports, etc. How important is it for you to be involved in these kind of activities?

- ☐ Not Important
- ☐ Somewhat Important
- ☐ Very Important
- ☐ Essential

21. How often are you involved in the kinds of non-engineering activities described above?

- ☐ Never
- ☐ Rarely
- ☐ Occasionally
- ☐ Frequently

22. Thinking about your college experience since the beginning of the Fall term, please indicate how much pressure you are feeling related to the following:

	No Pressure	Reasonable Pressure	Extreme Pressure
Course load (amount of course material being covered)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Course pace (the pace at which the course material is being covered)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Balance between social and academic life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

23. How well are you meeting the workload demands of your coursework?

- ☐ I am meeting all of the demands easily
- ☐ I am meeting all of the demands, but it is hard work
- ☐ I am meeting most of the demands, but cannot meet some
- ☐ I can meet some of the demands, but cannot meet most
- ☐ I cannot meet any of the demands

24. How stressed do you feel in your coursework right now?

- ☐ No stress
- ☐ Some stress
- ☐ Reasonable stress
- ☐ Significant stress
- ☐ Extreme stress

25. Do you have any concern about your ability to finance your college education?

- ☐ None (I am confident that I will have sufficient funds)
- ☐ Some (but I probably will have sufficient funds)
- ☐ Major (not sure if I will have sufficient funds to complete college)

26. How do you meet your college expenses?

	None	Very little	Less than half	About half	More than half	All or nearly all
Self (income)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Self (savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parents and family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employer support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scholarships and grants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

27. Do you have family members who are practicing engineers?

☐ Yes

☐ No

28. Do you have close friends who are practicing engineers?

☐ Yes

☐ No

29. How much exposure have you had to a professional engineering environment as a visitor, intern, or employee?

☐ No exposure

☐ Limited exposure

☐ Moderate exposure

☐ Extensive exposure

30. About how many hours do you spend in a typical 7-day week doing each of the following?

	0	1-5	6-10	11-15	16-20	21-25	26-30	more than 30
Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working for pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relaxing and socializing (watching TV, partying, exercising, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Providing care for dependents living with you (parents, children, spouse,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

etc.)

Commuting to class (driving, walking, etc.)

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

31. Please rate the overall quality of your collegiate experience so far:

- ☐ Very dissatisfied
- ☐ Dissatisfied
- ☐ Satisfied
- ☐ Very satisfied

32. What did you do this past summer that was particularly important to you?

33. Did your summer experience advance your interest in studying engineering?

- ☐ Yes
- ☐ No

34. Did you participate over the summer in any of the following? (Mark all that apply.)

- ☐ Engineering related internship/job
- ☐ Engineering related research
- ☐ Engineering related coursework
- ☐ N/A

35. In the space provided, list 5 terms you would use to describe “engineering”:

36. In the space provided, list 5 terms you would use to describe “design”:

37. In the space provided, list 5 activities you think engineers do at work.

38. Of the 20 items below, please put a check mark next to the five you think are MOST IMPORTANT for practicing engineers.

- ☐ Business knowledge
- ☐ Communication
- ☐ Conducting experiments
- ☐ Contemporary issues
- ☐ Creativity
- ☐ Data analysis
- ☐ Design
- ☐ Engineering analysis
- ☐ Engineering tools
- ☐ Ethics
- ☐ Global context
- ☐ Leadership
- ☐ Life-long learning
- ☐ Management skills
- ☐ Math
- ☐ Problem solving
- ☐ Professionalism
- ☐ Science
- ☐ Societal context

☐ Teamwork

39. Your sex:

☐ Female

☐ Male

40. Please indicate your ethnic background: (Mark all that apply)

☐ White/Caucasian

☐ African American/Black

☐ American Indian/Alaska Native

☐ Asian American/Asian

☐ Native Hawaiian/Pacific Islander

☐ Mexican American/Chicano

☐ Puerto Rican

☐ Other Latino

☐ Other

41. Citizenship status:

☐ U.S. Resident

☐ Permanent resident (Green card)

☐ Neither

42. Do any of your immediate family members hold an engineering degree? (Mark all that apply)

☐ No

☐ Yes, both parents

☐ Yes, father only

☐ Yes, mother only

☐ Yes, sibling(s)

43. What is the highest level of education that your mother completed? (Mark one box)

- ☐ Did not finish high school
- ☐ Graduated from high school
- ☐ Attended college but did not complete degree
- ☐ Completed an Associate's degree (A.A., A.S., etc.)
- ☐ Completed a Bachelor's degree (B.A., B.S., etc.)
- ☐ Completed a Master's degree (M.A., M.S., etc.)
- ☐ Completed a Professional degree (J.D., M.D., etc.)
- ☐ Completed a Doctoral degree (Ph.D., Ed.D)

44. What is the highest level of education that your father completed? (Mark one box)

- ☐ Did not finish high school
- ☐ Graduated from high school
- ☐ Attended college but did not complete degree
- ☐ Completed an Associate's degree (A.A., A.S., etc.)
- ☐ Completed a Bachelor's degree (B.A., B.S., etc.)
- ☐ Completed a Master's degree (M.A., M.S., etc.)
- ☐ Completed a Professional degree (J.D., M.D., etc.)
- ☐ Completed a Doctoral degree (Ph.D., Ed.D)

45. What is your best estimate of your parents' total income last year? Consider income from all sources before taxes. (Mark one)

- ☐ Less than \$10,000
- ☐ \$10,000-14,999
- ☐ \$15,000-19,999
- ☐ \$20,000-24,999
- ☐ \$25,000-29,999
- ☐ \$30,000-39,999
- ☐ \$40,000-49,999



- ☐ \$50,000-59,999
- ☐ \$60,000-74,999
- ☐ \$75,000-99,999
- ☐ \$100,000-149,999
- ☐ \$150,000-199,999
- ☐ \$200,000-249,999
- ☐ \$250,000 or more

*Academic Pathways Study Spring'06 Survey*

*Large Midwestern Public University (LMPub)*

Please click the SUBMIT button only after you have completed the survey. For best viewing results, please maximize your browser window.

1. What is your expected year of graduation from college?

- ☐ 2006
- ☐ 2007
- ☐ 2008
- ☐ 2009
- ☐ 2010
- ☐ 2011
- ☐ 2012
- ☐ 2013 or later

2. Do you intend to complete a major in engineering?

- ☐ Definitely Not
- ☐ Probably Not
- ☐ Not Sure
- ☐ Probably Yes
- ☐ Definitely Yes

3. What do you intend to major in?

- ☐ Aerospace engineering & mechanics
- ☐ Astrophysics
- ☐ Bio-based products engineering
- ☐ Biomedical engineering
- ☐ Biosystems & agricultural engineering

- ☐ Chemical engineering
- ☐ Chemistry
- ☐ Civil engineering
- ☐ Computer engineering
- ☐ Computer science
- ☐ Electrical engineering
- ☐ Petroleum engineering
- ☐ Geological engineering
- ☐ Geology
- ☐ Geophysics
- ☐ Materials science & engineering
- ☐ Mathematics
- ☐ Mechanical engineering
- ☐ Physics
- ☐ Statistics
- ☐ Arts & humanities
- ☐ Education
- ☐ Social science
- ☐ Other non-engineering

4. If you intend to DOUBLE MAJOR, what is the second major you intend to complete? (Mark N/A if you do not intend to double major.)

- ☐ Aerospace engineering & mechanics
- ☐ Astrophysics
- ☐ Bio-based products engineering
- ☐ Biomedical engineering
- ☐ Biosystems & agricultural engineering
- ☐ Chemical engineering
- ☐ Chemistry
- ☐ Civil engineering
- ☐ Computer engineering
- ☐ Computer science
- ☐ Electrical engineering

- ☐ Petroleum engineering
- ☐ Geological engineering
- ☐ Geology
- ☐ Geophysics
- ☐ Materials science & engineering
- ☐ Mathematics
- ☐ Mechanical engineering
- ☐ Physics
- ☐ Statistics
- ☐ Arts & humanities
- ☐ Education
- ☐ Social science
- ☐ Other non-engineering

5. Do you intend to practice, conduct research in, or teach engineering for at least 3 years after graduation?

- ☐ Definitely Not
- ☐ Probably Not
- ☐ Not Sure
- ☐ Probably Yes
- ☐ Definitely Yes

6. If you are thinking of going to graduate school NOT IN ENGINEERING, please mark your most probable area of study. Otherwise, mark N/A.

- ☐ Business
- ☐ Education
- ☐ Medicine
- ☐ Law
- ☐ MA/Ph.D.
- ☐ Public Service
- ☐ Other
- ☐ N/A

7. We are interested in knowing why you are studying engineering now. Please indicate below the extent to which the following reasons apply to you:

	Not a Reason	Minimal Reason	Moderate Reason	Major Reason
Technology plays an important role in solving society's problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers make more money than most other professionals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My parent(s) would disapprove if I chose a major other than engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers have contributed greatly to fixing problems in the world	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers are well paid	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineering is an occupation that is respected by other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My parent(s) want me to be an engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
An engineering degree will guarantee me a job when I graduate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Engineers are creative problem solvers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A faculty member, academic advisor, teaching assistant or other university affiliated person has encouraged and/or inspired me to study engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A non-university affiliated mentor has encouraged and/or inspired me to study engineering	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. Please indicate how strongly you disagree or agree with each of the statements:

	Disagree Strongly	Disagree	Agree	Agree Strongly
I prefer studying in a group to studying by myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am a competitive person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I prefer working as part of a team to working alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I get along well with others in study situations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I strive to get higher grades than my classmates	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The educational institution I am attending promotes competitive work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
My instructors often remind students that they need to do better than other students to obtain high grades	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I have easy access to work spaces where I can participate in peer study/discussion sessions with my fellow students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am encouraged by my instructors to initiate or participate in peer study sessions with my fellow students	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am a collaborative person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The educational institution I am attending promotes collaborative work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Please indicate how strongly you disagree or agree with each of the statements:

	Disagree Strongly	Disagree	Agree	Agree Strongly
Creative thinking is one of my strengths	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am familiar with what a practicing engineer does	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I am skilled at solving problems that can have multiple solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. Rate yourself on each of the following traits as compared to your classmates. We want the most accurate estimate of how you see yourself. (Mark one in each row.)

	Lowest 10%	Below Average	Average	Above Average	Highest 10%
Self confidence (social)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leadership ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Public speaking ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Math ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Science ability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Computer skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communication skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to apply math and science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

principles in solving real world problems					
Business ability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to perform in teams	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Critical Thinking skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

11. How important do you think each of the following skills and abilities is to becoming a successful engineer? (Mark one in each row.)

	Not Important	Somewhat Important	Very Important	Crucial
Self confidence (social)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Leadership ability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Public speaking ability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Math ability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Science ability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Computer skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Communication skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to apply math and science principles in solving real world problems	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business ability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ability to perform in teams	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

12. Please rate your satisfaction with this institution on each of the aspects of campus life listed below. If you do not have experience with this aspect, mark N/A.

	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied	N/A
Quality of instruction by faculty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality of advising by faculty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Availability of faculty	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality of instruction by teaching assistants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Quality of advising by teaching assistants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Availability of teaching assistants	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
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13. Please rate your satisfaction with each of the following at this institution. If you do not use the service or facility, mark N/A.

	Very Dissatisfied	Dissatisfied	Satisfied	Very Satisfied	N/A
Computer facilities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Libraries	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Classrooms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Tutoring	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Academic advising	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Laboratories	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

14. Since the beginning of the Spring term, how often have you taken courses which required your engagement in individual and/or group projects?

- ☒ Never  
☒ Rarely  
☒ Occasionally  
☒ Frequently

15. Think about the engineering classes you have taken since the beginning of the Spring term (engineering, math, and science classes). Indicate how often you: (Mark N/A if you have not taken any engineering related classes.)

	Never	Rarely	Occasionally	Frequently	N/A
Came late to engineering class	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Skipped engineering class	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Turned in engineering assignments that did not reflect your best work	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Turned in engineering assignments late	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Thought engineering classes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



were boring ☐ ☐ ☐ ☐ ☐

16. Think about the liberal arts classes you have taken since the beginning of the Spring term (not engineering, math, and science). Indicate how often you: (Mark N/A if you have not taken any non-engineering related classes.)

	Never	Rarely	Occasionally	Frequently	N/A
Came late to liberal arts class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Skipped liberal arts class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turned in liberal arts assignments that did not reflect your best work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Turned in liberal arts assignments late	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thought liberal arts classes were boring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. How often have you interacted with the following people since the beginning of the Spring term (e.g. by phone, e-mail, Instant Messenger, or in person)? (Mark one for each item.)

	Never	1-2 times per Term	1-2 times per Month	Once per Week	2-3 times per Week	Daily
Faculty during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Faculty during office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Faculty outside of class or office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching Assistants during class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching Assistants during office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Teaching Assistants outside of class or office hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. What portion of the courses you have taken since the beginning of the Spring term have been taught primarily by graduate students?

☐ None

- ☐ Very little
- ☐ Less than half
- ☐ About half
- ☐ More than half
- ☐ All or nearly all

19. Since the beginning of the Spring term, what portion of your classes have used the following teaching methods?

	None	Very little	Less than half	About half	More than half	All or nearly all
Lectures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Individual Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Team Projects	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Labs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Seminars	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. To what extent have your courses required your engagement in individual and/or group projects?

- ☐ Too Few
- ☐ Enough
- ☐ Too many

21. Some people are involved in non-engineering activities on or off campus, such as hobbies, civic or church organizations, campus publications, student government, social fraternity or sorority, sports, etc. How important is it for you to be involved in these kind of activities?

- ☐ Not Important
- ☐ Somewhat Important
- ☐ Very Important
- ☐ Essential

22. How often are you involved in the kinds of non-engineering activities described above?

- ☐ Never
- ☐ Rarely
- ☐ Occasionally
- ☐ Frequently

23. Thinking about your college experience since the beginning of the Spring term, please indicate how much pressure you are feeling related to the following:

	No Pressure	Reasonable Pressure	Extreme Pressure
Course load (amount of course material being covered)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Course pace (the pace at which the course material is being covered)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Balance between social and academic life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. How well are you meeting the workload demands of your coursework?

- ☐ I am meeting all of the demands easily
- ☐ I am meeting all of the demands, but it is hard work
- ☐ I am meeting most of the demands, but cannot meet some
- ☐ I can meet some of the demands, but cannot meet most
- ☐ I cannot meet any of the demands

25. How stressed do you feel in your coursework right now?

- ☐ No stress
- ☐ Some stress
- ☐ Reasonable stress
- ☐ Significant stress
- ☐ Extreme stress

26. Do you have any concerns about your ability to finance your college education?

- ☐ None (I am confident that I will have sufficient funds)
- ☐ Some (but I probably will have sufficient funds)
- ☐ Major (not sure if I will have sufficient funds to complete college)

27. How do you meet your college expenses?

	None	Very little	Less than half	About half	More than half	All or nearly all
Self (income)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Self (savings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parents and family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employer support	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scholarships and grants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

28. Do you have close friends who are practicing engineers?

- ☐ No
- ☐ Yes

29. Do you have family members who are practicing engineers?

- ☐ No
- ☐ Yes

30. How much exposure have you had to a professional engineering environment as a visitor, intern, or employee?

- ☐ No exposure
- ☐ Limited exposure
- ☐ Moderate exposure

☐ Extensive exposure

31. About how many hours do you spend in a typical 7-day week doing each of the following?

	0	1-5	6-10	11-15	16-20	21-25	26-30	more than 30
Preparing for class (studying, reading, writing, doing homework or lab work, analyzing data, rehearsing, and other academic activities)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Working for pay	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in co-curricular activities (organizations, campus publications, student government, social fraternity or sorority, intercollegiate or intramural sports, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relaxing and socializing (watching TV, partying, exercising, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Providing care for dependents living with you (parents, children, spouse, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Commuting to class (driving, walking, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

32. Please rate the overall quality of your collegiate experience so far:

- ☐ Very dissatisfied  
☐ Dissatisfied  
☐ Satisfied  
☐ Very satisfied

33. Some students during their academic career have a specific experience that prompts them to doubt their decision to major in engineering. Have you had any such experiences?

☐ No

☐ Yes

34. If YES, please indicate the type(s) of reason(s) and/or experience(s) that prompted you to DOUBT your decision to major in engineering. Check all that apply.

- ☐ Assignment/test/exam grade in a math or science class
- ☐ Assignment/test/exam grade in an engineering-related class
- ☐ Workload-related experience
- ☐ Course material in a math or science class
- ☐ Course material in an engineering-related class
- ☐ Course instruction
- ☐ Interaction with peers (e.g. group project, in-class activities, etc.)
- ☐ Interaction with a faculty member or instructor
- ☐ N/A - I have not had any experiences that prompted me to doubt my decision to major in engineering.
- ☐ Other:

35. Please indicate the type(s) of reason(s) and/or experience(s) that prompted you to CONFIRM your decision to major in engineering. Check all that apply.

- ☐ Assignment/test/exam grade in a math or science class
- ☐ Assignment/test/exam grade in an engineering-related class
- ☐ Workload-related experience
- ☐ Course material in a math or science class
- ☐ Course material in an engineering-related class
- ☐ Course instruction
- ☐ Interaction with peers (e.g. group project, in-class activities, etc.)
- ☐ Interaction with a faculty member or instructor
- ☐ N/A - I have not had any experiences that prompted me to confirm my decision to major in engineering.
- ☐ Other:

36. Since coming to college, have you had any research experience(s)?

- ☐ No
- ☐ Yes, in engineering related areas
- ☐ Yes, in non-engineering related areas

37. Your sex:

- ☐ Male
- ☐ Female

38. Please indicate your ethnic background: (Mark all that apply)

- ☐ White/Caucasian
- ☐ African American/Black
- ☐ American Indian/Alaska Native
- ☐ Asian American/Asian
- ☐ Native Hawaiian/Pacific Islander
- ☐ Mexican American/Chicano
- ☐ Puerto Rican
- ☐ Other Latino
- ☐ Other

39. Citizenship Status:

- ☐ U.S. Resident
- ☐ Permanent Resident (Green Card)
- ☐ Neither

40. What was your average grade in high school? (Mark one)

- ☐ A or A+
- ☐ A-
- ☐ B+
- ☐ B

- ☐ B-
- ☐ C+
- ☐ C
- ☐ C-
- ☐ D

41. What is the highest level education that your mother completed? (Mark one)

- ☐ Did not finish high school
- ☐ Graduated from high school
- ☐ Attended college but did not complete degree
- ☐ Completed an Associate's degree (A.A., A.S., etc.)
- ☐ Completed a Bachelor's degree (B.A., B.S., etc.)
- ☐ Completed a Master's degree (M.A., M.S., etc.)
- ☐ Completed a Professional degree (J.D., M.D., etc.)
- ☐ Complete a Doctoral degree (Ph.D.)

42. What is the highest level education that your father completed? (Mark one)

- ☐ Did not finish high school
- ☐ Graduated from high school
- ☐ Attended college but did not complete degree
- ☐ Completed an Associate's degree (A.A., A.S., etc.)
- ☐ Completed a Bachelor's degree (B.A., B.S., etc.)
- ☐ Completed a Master's degree (M.A., M.S., etc.)
- ☐ Completed a Professional degree (J.D., M.D., etc.)
- ☐ Complete a Doctoral degree (Ph.D.)

43. What is your best estimate of your parents' total income last year? Consider income from all sources before taxes. (Mark one)

- ☐ Less than \$10,000
- ☐ \$10,000-14,999



- ☐ \$15,000-19,999
- ☐ \$20,000-24,999
- ☐ \$25,000-29,999
- ☐ \$30,000-39,999
- ☐ \$40,000-49,999
- ☐ \$50,000-59,999
- ☐ \$60,000-74,999
- ☐ \$75,000-99,999
- ☐ \$100,000-149,999
- ☐ \$150,000-199,999
- ☐ \$200,000-249,999
- ☐ \$250,000 or more

44. How many years of college did you complete before you transferred to the LMPub?

- ☐ Not applicable - I did not transfer to LMPub.
- ☐ None
- ☐ One year completed
- ☐ Two years completed
- ☐ Three years completed
- ☐ Four years completed
- ☐ More than four years completed

45. What type of institution did you attend before you transferred to LMPub?







































































- ☐ Not applicable - I did not transfer to LMPub.
- ☐ 2-year college
- ☐ 4-year public college/university (other than LMPub)
- ☐ 4-year private college/university (e.g., other school names)
- ☐ Another LMPub campus
- ☐ Another college on the "Big City" campus of LMPub
- ☐ Other:

46. Do any of your immediate family members hold an engineering degree? (Mark all that apply)

- ☐ No
- ☐ Yes, both parents
- ☐ Yes, father only
- ☐ Yes, mother only
- ☐ Yes, siblings

47. Please rate the extent to which you agree that each of the following is a reason why you are currently majoring in or considering majoring in engineering:

	Strongly Disagree	Moderately Disagree	Disagree	Unsure	Agree	Moderately Agree	Strongly Agree
I think engineering is interesting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am majoring in engineering for my own good	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am supposed to major in engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
There may be good reasons to major in engineering, but personally, I don't see any	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think engineering is pleasant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think engineering is good for	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

me							
Majoring in							
engineering							
is							
something							
that I have							
to do							
I am							
majoring in							
(considering							
majoring in)							
engineering,							
but I am not							
sure if it is							
worth it							
Majoring in							
engineering							
is fun							
It is my							
personal							
decision							
I don't have							
any choice							
I don't							
know. I							
don't see							
what the							
activity							
brings me							
I feel good							
when I am							
doing							
engineering							
activities							
I believe							
engineering							
is important							
for me							
I feel that I							
have to do it							
I am doing							
it, but am							
not sure it is							
a good thing							
to pursue							

48. Of the twenty-three design activities below, please put a check mark next to the SIX MOST IMPORTANT.

- ☐ Abstracting
- ☐ Brainstorming
- ☐ Building
- ☐ Communicating
- ☐ Decomposing
- ☐ Evaluating
- ☐ Generating alternatives
- ☐ Goal Setting
- ☐ Identifying constraints
- ☐ Imagining
- ☐ Iterating
- ☐ Making decisions
- ☐ Making trade-offs
- ☐ Modeling
- ☐ Planning
- ☐ Prototyping
- ☐ Seeking information
- ☐ Sketching
- ☐ Synthesizing
- ☐ Testing
- ☐ Understanding the problem
- ☐ Using creativity
- ☐ Visualizing

49. Of the twenty-three design activities below, please put a check mark next to the SIX LEAST IMPORTANT.

- ☐ Abstracting
- ☐ Brainstorming
- ☐ Building
- ☐ Communicating

- ☐ Decomposing
- ☐ Evaluating
- ☐ Generating alternatives
- ☐ Goal Setting
- ☐ Identifying constraints
- ☐ Imagining
- ☐ Iterating
- ☐ Making decisions
- ☐ Making trade-offs
- ☐ Modeling
- ☐ Planning
- ☐ Prototyping
- ☐ Seeking information
- ☐ Sketching
- ☐ Synthesizing
- ☐ Testing
- ☐ Understanding the problem
- ☐ Using creativity
- ☐ Visualizing

50. For the following engineering design activities, please indicate your level of confidence. For example, if you have little or no confidence in your ability to model engineering solutions, then mark poor. If you are extremely confident in your ability, mark excellent.

	Poor	Fair	Good	Very Good	Excellent
Defining what the problem really is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching for and collecting information needed to solve the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinking up potential solutions to the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detailing how to build the solution to the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assessing and passing judgment on a possible or planned solution to the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comparing and contrasting two solutions to the problem on a particular dimension such as cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Selecting one idea or solution to the problem from among those considered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communicating elements of the design in sketches, diagrams, lists, and written or oral reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

51. For the following engineering design activities, please indicate how often you engaged in the activity in your coursework in the current academic year.

	Never	1-2 times per term	1-2 times a month	Once a week	2-3 times a week	Daily
Defining what the problem really is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching for and collecting information needed to solve the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinking up potential solutions to the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Detailing how to build the solution to the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assessing and passing judgment on a possible or planned solution to the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comparing and contrasting two solutions to the problem on a particular dimension such as cost	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Selecting one idea or solution to the problem from among those considered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Communicating elements of the design in sketches, diagrams, lists, and written or oral reports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

52. For the following engineering design activities, please indicate how well you think your courses are preparing you to engage in the activity. For example, if you think they are not preparing you at all, then mark poor. If you think they are preparing you extremely well, then mark excellent.

	Poor	Fair	Well	Very well	Excellent
Defining what the problem really is	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching for and collecting information needed to solve the problem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thinking up potential solutions to the problem	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Detailing how to build the solution to the problem	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Assessing and passing judgment on a possible or planned solution to the problem	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comparing and contrasting two solutions to the problem on a particular dimension such as cost	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Selecting one idea or solution to the problem from among those considered	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Communicating elements of the design in sketches, diagrams, lists, and written or oral reports	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

53. From the following list, please put a check mark next to the FIVE kinds of information you would MOST LIKELY NEED as you work on a typical engineering problem.

- ☐ Problem scope and severity
- ☐ Specifications and requirements
- ☐ Legal, regulatory, and industry standards
- ☐ Risks and safety
- ☐ Available budget
- ☐ Project costs
- ☐ Materials
- ☐ Labor
- ☐ Maintenance
- ☐ Schedule and deadlines
- ☐ Project and team coordination
- ☐ User demographics and opinion
- ☐ User behavior
- ☐ Client who hired engineers
- ☐ Other stakeholders (non-user, non-client)
- ☐ Impact on natural environment
- ☐ Social and physical context
- ☐ Anticipated benefits
- ☐ Aesthetics
- ☐ State of the art in engineering and technology

54. From the following list, please put a check mark next to the FIVE kinds of information you would LEAST LIKELY NEED as you work on a typical engineering problem.

- ☐ Problem scope and severity
- ☐ Specifications and requirements
- ☐ Legal, regulatory, and industry standards
- ☐ Risks and safety
- ☐ Available budget
- ☐ Project costs
- ☐ Materials
- ☐ Labor
- ☐ Maintenance
- ☐ Schedule and deadlines
- ☐ Project and team coordination
- ☐ User demographics and opinion
- ☐ User behavior
- ☐ Client who hired engineers
- ☐ Other stakeholders (non-user, non-client)
- ☐ Impact on natural environment
- ☐ Social and physical context
- ☐ Anticipated benefits
- ☐ Aesthetics
- ☐ State of the art in engineering and technology

55. Please rank the following items in terms of how important you think they are to engineering problem-solving. For each of your answers, mark a rank between 1 and 6. A rank of "1" indicates the most important item and "6" indicates the least important item. Use each number only once.

	1	2	3	4	5	6
Economic context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Global context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Natural context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Societal context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Technological context	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Political context ☐ ☐ ☐ ☐ ☐ ☐ ☐

56. What is your expected grade point average this academic term?

- ☐ A or A+ (3.9-4.0)
- ☐ A- (3.5-3.8)
- ☐ B+ (3.2-3.4)
- ☐ B (2.9-3.1)
- ☐ B- (2.5-2.8)
- ☐ C+ (2.2-2.4)
- ☐ C (1.9-2.1)
- ☐ C- (1.5-1.8)
- ☐ D (less than 1.4)

57. What are your summer plans?

## Academic Pathways Study of Engineering Education: Large Midwestern Public University Focus Group Discussion Guide (April 5, 2007)

### Introduction

**Good evening, thanks** for taking time to help us with this study.

My name is **[name of researcher]** and I am working for the **[name of department]**, along with engineering schools at **four other universities** around the country. We are studying the experiences of engineering students so we can find ways to improve the education process.

You were invited because, **obviously, you are engineering students** and we want to hear about **your experiences and your opinions** of your education programs.

There are **no right or wrong answers** and we expect you will have different points of view about and different experiences. Please feel free to tell us about your experiences **even if they are different** from others. And we want to hear negative as well as positive comments.

We are **tape recording** this session because we don't want to miss any comments. Be assured that all your **information is confidential** and no one will be identified in the final report. I have **consent forms** here, if you want.

The **name tents** are only for this discussion to help me remember your names and help you follow up on other peoples' comments. **If you agree or disagree**, please say so. **Don't feel like you have to talk to me** all the time, this is a discussion with you guys as the experts.

We want to **hear from each one** of you, so if you haven't said anything for awhile—I may call on you for your comments. If you are talking all the time, I may ask you to wait and let others talk. Feel free to **help yourself to the food** and drinks.

OK? Let's get started.

First, I'd like to know who you are, your **first name**, what is **your major**, your **hometown**, and how did you **end up choosing LMPub**.

**Academic Pathways Study of Engineering Education: Large Midwestern Public University**  
Focus Group Discussion Guide (April 5, 2007)

Pre-discuss	Fill out demographics (graduation year, major)
00:00 – 00:05	Consent Process <ul style="list-style-type: none"> <li>Hand out consent process forms and allow participants to read form</li> </ul>
00:05 – 00:10	Background Information <ul style="list-style-type: none"> <li>Overview and benefits of APS study</li> </ul>
00:10 – 00:35	Motivation to study engineering <ul style="list-style-type: none"> <li>Why did you choose to study engineering? (motivations) <ul style="list-style-type: none"> <li>Financial?</li> <li>Family?</li> <li>Societal benefit?</li> </ul> </li> <li>Was anyone influential in your decision? Who?</li> <li>What previous exposure to and experience with engineering?</li> </ul>
00:35 – 01:15	Knowledge and skills of engineering <ul style="list-style-type: none"> <li>Describe engineering (five words) <i>write descriptions on post-it notes and group into categories on flip chart paper on wall</i></li> <li>What do you think engineers do at work ("a day in the life" "real world")?</li> <li>What knowledge do you think engineers use in daily practice? <ul style="list-style-type: none"> <li>What knowledge is important for practice?</li> <li>What do engineers need to know to practice?</li> </ul> </li> <li>In what engineering-related knowledge and skills are you most confident yourself? <ul style="list-style-type: none"> <li>How confident are you in solving problems with multiple solutions?</li> <li>How confident are you in your ability to apply math and science to solving real world problems? Experience with projects?</li> </ul> </li> </ul>
01:15 – 01:30	Institutional experience (discuss satisfaction with facilities and faculty) <ul style="list-style-type: none"> <li>Overall satisfaction with LMPub</li> <li>Satisfaction with [name of department] (facilities)</li> <li>Satisfaction with your interactions in classes</li> <li>Satisfaction with your interactions with faculty</li> <li>Satisfaction with your interactions with TAs</li> <li>Participation in non-engineering activities</li> </ul>
01:30 – 01:50	Managing workload <ul style="list-style-type: none"> <li>How do you feel about your course load? (<i>probe for</i> pressure, stress, motivation to continue)</li> <li>What is the value of your course content? (<i>probe for</i> relevance)</li> </ul>

	<ul style="list-style-type: none"> <li>· Discuss engagement/disengagement with coursework</li> <li>· Discuss participation in and value of extra-curricular activity</li> <li>· How do you balance social and academic demands?</li> </ul>
01:50 – 2:00	Anything else I should know? Concluding comments? Thank you.