PREPARATION FOR A SUCCESSFUL ABET 2000 ACCREDITATION VISIT

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Introduction

The EC2000 accreditation criteria is a very significant change from the previous criteria and requires programs to prepare much differently for an accreditation visit. Detailed published program educational objectives must be prepared and a process developed to assess whether the program objectives are being met by the curriculum. A system of ongoing evaluation that demonstrates achievement of these objectives and uses the results of the assessment process to improve the effectiveness of the program is also required. All accredited programs must also meet the EC2000 program outcomes a-k and demonstrate through their assessment process that these are being met.

In addition to the program objectives and EC2000 program outcomes, it must be demonstrated that the professional component and environmental engineering program criteria are met. The professional component consists of (a) one year of a combination of college level mathematics and basic sciences (b) one and one-half years of engineering topics, and (c) general education that complements the technical content of the curriculum and is consistent with the program and institutional objectives.

The environmental engineering program criteria require that graduates of the program demonstrate knowledge of fundamental concepts of waste minimization and pollution prevention; understanding of the roles and responsibilities of public institutions and private organizations in environmental management; capability to apply environmental systems and process modeling techniques; proficiency in mathematics through differential equations and statistics, calculus-based physics, general chemistry, earth science, biological science and fluid mechanics. The program criteria also requires knowledge of introductory level fundamentals in the following major focus areas: water supply and resources, environmental systems modeling, environmental chemistry, wastewater management, solid waste management, hazardous waste management, atmospheric systems and air pollution control, and environmental and occupational health; proficiency in advanced principles and practice in a minimum of three of the major focus areas listed above. Understanding of concepts of professional practice and the importance of professional licensing and continuing education are also expected of graduates.

Preparation for Accreditation Visit

The department of civil and environmental engineering at UWP offers two degrees: civil engineering and environmental engineering. Preparation for the accreditation visit for the

undergraduate bachelor of science degrees began two years prior to the actual visit with the development of program objectives, identification of constituencies, and development of a more formalized assessment process than existed under the previous Accreditation Board for Engineering and Technology (ABET) criteria. Since the programs overlap and have many of the same required classes, the same program objectives were adopted. The program objectives were developed with input from the Engineering Advisory Board, one of the constituents, and published in the catalog and on the department web page (www.uwplatt.edu/~enve/).

The assessment process to provide feedback on achievement of EC2000 program outcomes and University of Wisconsin-Platteville (UWP) program objectives was developed next. Because the assessment process is the most significant change from the previous accreditation criteria, a significant amount of time and effort was required to develop and implement it initially. Now that the process is established the effort to continue it is expected to be much less than at the beginning. One of the goals in developing the assessment process was to make it easy to implement and yet be one that would stimulate continuous improvement of the program. The process consists of the nine assessment activities which are listed in Table 1. All assessment activities are completed on a semester basis except the survey of alumni and their employers which is completed on an annual basis. All of the assessment results are compiled on an annual basis and presented to the departmental curriculum and assessment committee at the first department meeting prior to the beginning of the fall semester. This timetable allows for compilation of the results and preparation of the summary reports for each activity by the department chair/program coordinator over the summer. The relationship between the constituencies and the assessment process is shown in Figure 1. For ease of administration the assessment activities are completed for both civil and environmental engineering at the same time and because the environmental engineering program is only 4 years old and only has a few graduates the assessment results for all activities were combined. In the future separate assessments will be made for each program.

Figure 1: Framework for the Environmental Engineering Assessment Process

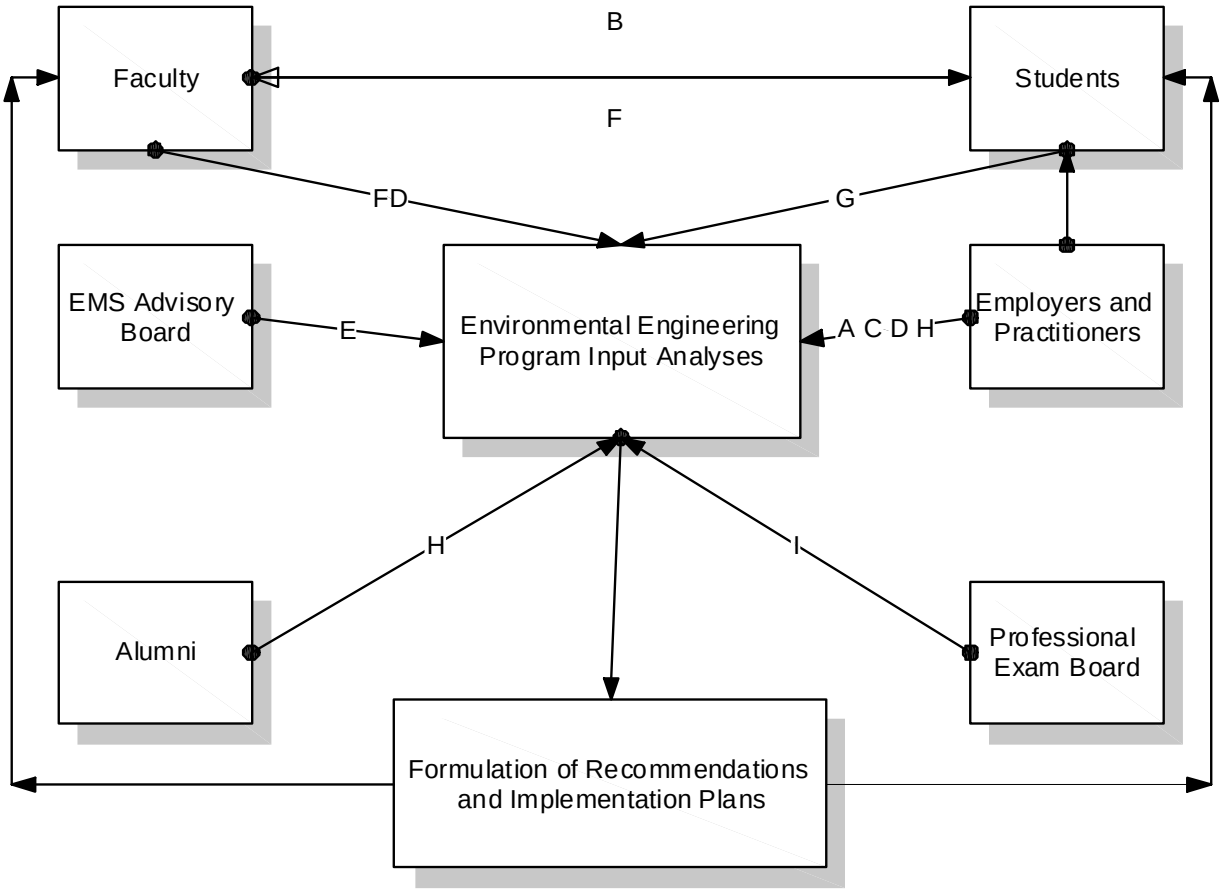

Table 1. Assessment Measurement Tools

A. Survey data from employers of summer interns and Co-op students
B. Instructor evaluation of oral and written reports
C. Survey data from potential employers interviewing CEE students on campus
D. Evaluation summaries of senior design projects by consultants/practitioners
E. Program review from college of EMS' Advisory Board
F. Evaluation summaries of CEE courses by students
G. Exit Survey data from graduating seniors
H. Survey data from program alumni and their employers
I. Fundamentals of Engineering examination results

Results of assessment measurement tools A, C, D, F, G, and H are compiled by the departmental program assistant during the school year and a report for each is written by the

program coordinator during the summer. The results from B and F are used directly by faculty in assessing completion of program objectives and EC2000 program outcomes. Results for I are provided to the department and a summary report is written by the program coordinator during the summer. Results from E are provided to the Dean of the college and disseminated to the environmental engineering program coordinator. The assessment measurement instruments for A, C, D, F, G, H are contained in appendix 1.

Most of the survey instruments used in the assessment process asked respondents to indicate their agreement or disagreement with statements about aspects of the program. The responses one could choose from are: strongly agree, agree, neutral, disagree, or strongly disagree. To use the results of the assessment process for improvement of the program the following policy was adopted:

> *For any given survey-statement, the combined percentage of respondents indicating "disagree" and "strongly disagree" shall not exceed 10%. An investigation shall be warranted and appropriate changes shall be made in the area of concern if the 10% performance adequacy limit is exceeded*.

For the Fundamentals of Engineering Exam the results of each subject area were compared to the national average and the following policy for evaluating performance was adopted:

> *For each subject area the average percent of questions correctly answered by UWP EnvE students shall exceed the national average, but the Committee shall consider an adequate performance to be no less than 90% of the national average . An investigation is warranted and possible improvements shall be considered regarding a particular subject if the 90% performance adequacy criterion is not met for two successive FE exams in the academic year*.

Self Study Preparation

Preparation of the self study was initiated by the program coordinator during the summer a year and one half before the assessment visit. The assessment chapter was prepared first with the remainder of the self study being prepared prior to March 15. The dean of the college set several intermediate completion deadlines for the self study during the year before the assessment visit was scheduled but everything was to be completed by March 15. A matrix was prepared that illustrates the relationships between the program objectives and the assessment instruments. This is shown in Table 2 below. To document that all EC2000 Program outcomes were being assessed, a matrix was prepared to illustrate these relationships too. This is shown in table 3 below.

Students are able to meet the program objectives and EC2000 program outcomes by the required courses they complete. The program objectives that are satisfied by each course were assembled in a matrix. A course folder was prepared for each course that contained the student

work that documented the completion of the program objectives and program outcomes. At the time of the on-site visit course folders were made available for inspection. The relationship between the program objectives and required courses is shown in Table 4 below. The relationship between the EC2000 program outcomes and required courses is shown in Table 5 below.

To document that the environmental engineering program criteria were also met by the program, a table was prepared that showed the program criteria and the course(s) that included coverage of it. Course numbers and titles used in the various tables are contained below. More detail can be obtained at the department web page: www.uwplatt.edu/~enve/. Documentation of how the EC2000 program criteria and courses are shown below in Table 6 and Table 7. To document how each of the EC2000 program outcomes and program objectives were met in each class Table 8 was prepared. It included homework, lab reports, exams, design projects, oral presentations, term paper, guest speaker, special lecture topics and field trip as the methods of delivery of the courses. This table was placed in the front pocket of each course folder as an aid to the evaluator.

Course Number	Course Title	Course Number	Course Title
Math 2640	Calculus I	CEE 4310	Groundwater Hydrology
Math 2740	Calculus II	CEE 4330	Solid & Hazardous Waste
Math 2840	Calculus III	CEE 4400	Applied Hydraulics
Math 3630	Differential Eqn	CEE 4410	Advanced Enviro. Engrg.
Math 4030	Prob. & Statistics	CEE 4630	Geog. Info. Systems
Phys 2510	Physics I Lab	CEE 4930	Sr. Design Project
Phys 2530	Physics I		
Chem 1450	Chemistry for Engineers		
Chem 3110	Envir. Chemistry Lab		
Chem 3130	Envir. Chemistry		
Geol 3130	Engrg. Geology		
Biol 3240	Microbiology		
GE 2130	Statics		
GE 2340	Mechanics of Materials		
GE 2820	Engr. Economics		
CEE 3020	Intro. to Construction		
CEE 2120	Computer Applications		
CEE 2630	Surveying		
CEE 3300	Fluid Mechanics		
CEE 3340	Intro. to Environmental Engineering		
CEE 3730	Geotechnical Engineering		
CEE 4020	Construction Costs & Estimates		
CEE 4040	Construction Management		
CEE 4300	Hydrology		

Table 2 Relationship of Environmental Engineering Program Objectives to Assessment Measurement Tools

ENVIRONMENTAL ENGINEERING PROGRAM ASSESSMENT INPUTS	Environmental Engineering Program Objectives 1. Enhance student ability to conceptualize, understand, and apply mathematics, physical sciences, and engineering science to solve practical engineering problems. 2. Enhance student ability to apply scientific principles to gather, analyze, and interpret data. 3. Enhance student ability to effectively and accurately communicate technical information orally and in writing. 4. Enhance student ability to develop teamwork skills. 5. Enhance student ability to use state-of-the-art technologies necessary for professional engineering practice. 6. Enhance student understanding of professional, legal, ethical, and lifelong learning responsibilities.					
	1	2	3	4	5	6
A. Survey data from employers of summer interns and COOP students	X	X	X	X	X	X
B. Instructor evaluation of oral and written reports		X	X	X		X
C. Survey data from potential employers interviewing CEE students on campus	X		X			X
D. Evaluation summaries of senior design projects by consultants/practitioners	X	X	X	X	X	X
E. Program Reviews from Advisory Board	X	X	X		X	X
F. Evaluation summaries of CEE courses by students						
G. Exit Survey data from graduating seniors	X	X	X	X	X	X
H. Survey data from program alumni and their employers	X	X	X	X	X	X
I. Fundamentals of Engineering examination results	X				X	X

Table 3 Assessment Measurement Tools and their relationship to EC2000 Program Outcomes

ENVIRONMENTAL ENGINEERING ASSESSMENT INPUTS	EC2000 PROGRAM OUTCOMES a. Ability to apply knowledge of mathematics, science, and engineering b Ability to design and conduct experiments, as well as to analyze and interpret data c. Ability to design a system, component, or process to meet desired needs d. Ability to function on multi-disciplinary teams e. Ability to identify, formulate, and solve engineering problems f. Understanding of professional and ethical responsibility g. Ability to communicate effectively h. The broad education necessary to understand the impact of engineering solutions in a global and societal context i Recognition of the need for, and the ability to engage in life-long learning j Knowledge of contemporary issues k. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice										
	a	b	c	d	e	f	g	h	i	j	k
A. Survey data from employers of summer interns and COOP students	X	X		X	X		X			X	X
B. Instructor evaluation of oral and written reports				X			X				
C. Survey data from potential employers interviewing CEE students on campus						X	X				
D. Evaluation summaries of senior design projects by consultants/practitioners	X	X	X	X	X	X	X	X		X	X
E. Program Reviews from Advisory Board	X	X	X		X		X				X
F. Evaluation summaries of CEE courses by students											
G. Exit Survey data from graduating seniors	X	X	X								X
H. Survey data from program alumni and their employers	X	X	X	X	X	X	X	X		X	X
I. Fundamentals of Engineering examination results	X	X			X	X				X	X

Table 4 Environmental Engineering Courses and their Relationship to Program Objectives

ENVIRONMENTAL ENGINEERING COURSES	Environmental Engineering Program Objectives 1. Enhance student ability to conceptualize, understand, and apply mathematics, physical sciences, and engineering science to solve practical engineering problems. 2. Enhance student ability to apply scientific principles to gather, analyze, and interpret data. 3. Enhance student ability to effectively and accurately communicate technical information orally and in writing. 4. Enhance student ability to develop teamwork skills. 5. Enhance student ability to use state-of-the-art technologies necessary for professional engineering practice. 6. Enhance student understanding of professional, legal, ethical, and lifelong learning responsibilities.					
	1	2	3	4	5	6
CEE 2120			X		X	
CEE 2630	X	X			X	
CEE 3020	X	X	X	X	X	X
CEE 3300	X	X	X	X		
CEE 3340	X	X	X	X	X	X
CEE 3730	X	X	X		X	
CEE 4020	X			X	X	X
CEE 4040	X		X			
CEE 4300	X	X	X	X	X	
CEE 4310	X	X	X			X
CEE 4330	X		X	X	X	
CEE 4400	X				X	
CEE 4410	X	X	X	X	X	X
CEE 4630		X	X	X	X	
CEE 4730	X		X		X	
CEE 4930	X		X	X	X	

Table 5 Environmental Engineering Courses and their Relationships to ABET Program Outcomes

ENVIRONMENTAL ENGINEERING CORE COURSES	ABET PROGRAM OUTCOMES a. Ability to apply knowledge of mathematics, science, and engineering b. Ability to design and conduct experiments, as well as to analyze and interpret data c. Ability to design a system, component, or process to meet desired needs d. Ability to function on multi-disciplinary teams e. Ability to identify, formulate, and solve engineering problems f. Understanding of professional and ethical responsibility g. Ability to communicate effectively h. The broad education necessary to understand the impact of engineering solutions in a global and societal context i. Recognition of the need for, and the ability to engage in life-long learning j. Knowledge of contemporary issues k. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

	a	b	c	d	e	f	g	h	i	j	k
CEE 212							X				X
CEE 263	X				X						X
CEE 302	X		X	X	X	X	X		X	X	X
CEE 330	X	X	X		X		X				X
CEE 334	X	X	X	X	X	X	X	X	X	X	X
CEE 373	X	X			X		X				X
CEE 402	X				X	X					X
CEE 404						X	X				
CEE 430	X	X			X		X	X			X
CEE 431	X				X	X	X	X		X	X
CEE 433	X	X	X			X	X	X		X	X
CEE 440	X		X		X					X	X
CEE 441	X		X	X	X		X	X		X	X
CEE 463	X		X	X			X			X	X
CEE 473	X		X		X		X				X
CEE 493	X		X	X	X		X	X	X	X	X
Social Science & Humanities										X	

Table 6 Environmental Engineering Program Criteria Coverage

Program Criteria Topic	Courses That Satisfy the Criteria
Waste minimization and pollution prevention	CEE 3340, CEE 4330
Roles and responsibilities of public institutions and private organizations	CEE 3340, 4300, 4310, 4330, 4400, 4410, 4930
Capability to apply environmental systems and process modeling techniques	CEE 3340, 4300, 4310, 4330, 4400, 4410
Proficiency in mathematics	Math 2640, 2740, 2840, 4030, 3630
Proficiency in physics, chemistry, earth science, and biological science	Phys 2510, 2530, Chem 1450, 3110, 3130, Geol 3130, Biol 3240
Proficiency in fluid mechanics	CEE 3300
Understanding of professional practice	GE 2820, CEE 4930

In addition the environmental engineering program criteria requires introductory level proficiency in the following focus areas and advanced level proficiency in three focus areas. These are shown in Table 7 below.

Table 7 Focus Area Coverage by Required Courses in Environmental Engineering

Focus Area	Chem 3130,3110	CEE 3340	CEE 4300	CEE 4310	CEE 4330	CEE 4400	CEE 4410
Water Supply & Resources		I	I,A	I, A	A	I, A	
Env. Systems Modeling		I	I,A	I	A	A	I, A
Envir. Chem	I, A	I					A
Wastewater Mgmt		I			A	I,A	A
Solid Waste Mgmt		I			A		I
Hazardous Waste Mgmt		I			A		
Atmos Sys. & Air Pollution	I	I			I		I
Env. & Occupat. Health	I	I			I		I

Note: I = Introductory level proficiency, A= Advanced level proficiency

Table 8 Relationship of Environmental Engineering Core Courses to Program Objectives and ABET Program Outcomes

		Environmental Emphasis Core Courses & Related Material						
		CEE 3300	CEE 3340	CEE 4300	CEE 4330	CEE 4310	CEE 4400	CEE 4410
ABET PROGRAM OUTCOMES	a	HW,LB EX	HW,LB EX	HW,LB EX	HW,LB, EX,DP	HW, EX	HW,EX	HW,EX,DP
	b	LB	LB	HW,LB	HW,LB,DP			
	c	HW,EX		LB			DP	HW,EX,DP, FT
	d		LB	LB				
	e	LB,OR		LB		HW	DP	DP
	f			SLT	SLT	TP		
	g	LB,OR	LB,OR	LB	OR,LB DP,TP	TP,OR	DP	DP,OR,TP
	h		SLT	SLT,FT	SLT,FT	TP,SLT		SLT,FT
	i							
	j		SLT	SLT,FT	SLT,FT	FT,TP,SLT		SLT,FT
	k	LB	HW,LB	HW,LB	SLT,FT	FT	HW,DP	DP,FT
ENV. ENG PROGRAM OBJECTIVES	1	HW,LB EX	HW,LB EX,	HW,LB EX,TP	HW,LB, EX,DP,TP	HW,EX	HW,EX, DP	HW,EX,DP
	2	LB	LB	LB			DP	
	3	LB,OR	LB	LB	HW,LB, EX,DP,TP	OR,TP	DP	DP,TP,OR
	4	LB	LB	LB				DP
	5		HW,LB	LB	LB,DP		HW,DP	FT,SLT,DP
	6		SLT	HW,LB EX,DP		FT,SLT,TP		

*HW = home work, DP=design project, LB=lab reports, EX=exams, OR=oral presentation, TP=term paper, GS=guest speaker, SLT= special lecture topic, FT=field trips

Site Visit

During the site visit the evaluator spent Sunday through Tuesday on campus. During that time he met with the program coordinator on Sunday afternoon to review the course folders and tour the laboratories. On Monday he met with students and faculty in the program as well as faculty from chemistry and biology in the morning. In the afternoon he had more detailed discussions with the program coordinator. He had questions about environmental engineering program criteria coverage in the curriculum and what constituted proficiency in a subject area. On Tuesday the evaluator orally presented his draft recommendations.

Lessons Learned

After completing the process of preparing for and participating in an EC2000 criteria accreditation visit the following suggestions are offered:

1. Send the person who will be preparing the self study and interacting with the ABET visitor to a training session.

2. Start preparing well before the visit
   It will take at least a year to establish the assessment process and complete the cycle of conducting the assessment and reviewing the results. It will take at least another year to implement changes based upon the assessment results obtained during the first cycle. The assessment cycle must be completed at least once. Document how the assessment process is evaluated and modified.

3. Develop program objectives that are unique to the program
   Program objectives do not need to include the EC2000 program outcomes. Graduates must meet program outcomes anyway. Include measures in the assessment process to determine if objectives are being met.

4. Develop definitions for terms and include them in the self study
   Terms should be defined in terms of the program. Terms to consider are: success in meeting program objectives, ability to apply knowledge, ability to design, understanding, understanding of need for, demonstrated knowledge of, proficiency in, modern engineering tools, sufficient number of faculty, etc.

5. Contact the visitor soon after he or she has been selected to see what additional information they may need. Ask who they would like to talk to during the on-site visit and when they would like to meet with them so that scheduling can be facilitated more easily.

Appendix 1

Engineering Alumnus Questionnaire

Engineering Programs Assessment Survey
College of Engineering, Mathematics, and Science
University of Wisconsin - Platteville

Please provide some background information.

1. I am a graduate of the following degree program at UW-Platteville:
   ☐ Civil Engineering ☐ Electrical Engineering ☐ Engineering Physics
   ☐ Environmental Engineering ☐ Industrial Engineering ☐ Mechanical Engineering

2. Year of graduation: _____

3. Status upon entering UW-Platteville: ☐ New Freshman ☐ Transfer Student

4. Gender: ☐ Male ☐ Female

5. Current job title: _____

6. Employed at this current employer for _____ years.

7. The best descriptor of my current responsibilities. (Please check one.)
   ☐ product design ☐ process design ☐ sales ☐ management
   ☐ technical support ☐ construction ☐ manufacturing ☐ consulting
   ☐ not employed as an engineer at present ☐ other _____

8. Current annual salary range:
   ☐ < $30,000 ☐ $30,000 - $40,000 ☐ $40,000 - $50,000
   ☐ $50,000 - $60,000 ☐ $60,000 - $70,000 ☐ $70,000 - $80,000
   ☐ > $80,000

9. Total number of engineers employed in the company (approximately):

10. The primary product/service of my company: _____

11. Number of people under my supervision:
    Professionals _____
    Support Staff _____
    ☐ Not Applicable

12. Current status of registration:□ Registered Professional Engineer□ Engineering in Training

□ I have no plans to pursue registration □ I have plans to pursue registration, but have not begun the process.

Please report your assessment of your UW-Platteville education by checking the appropriate response for each statement.

	Strongly Agree	**Agree**	**Neutral**	**Disagree**	**Strongly Disagree**
13. I feel that I was well-prepared to apply my knowledge of mathematics and science in my career.	____	____	____	____	____
14. I feel that I was well-prepared to apply my knowledge of engineering principles in my career.	____	____	____	____	____
15. I feel that I was well-prepared to design a necessary system, process, or experiment to meet my responsibilities.	____	____	____	____	____
16. I feel that I was well-prepared to participate as a member of a multi-disciplinary team.	____	____	____	____	____
17. I feel that I was well-prepared to identify, formulate, and solve problems using my engineering skills.	____	____	____	____	____
18. I feel that I acquired an adequate understanding of engineering ethics.	____	____	____	____	____
19. I feel that I acquired effective written communication skills.	____	____	____	____	____
20. I feel that I acquired effective oral communication skills.	____	____	____	____	____
21. I feel that my education at UW-Platteville enables me to understand the impact of engineering design on society and the environment.	____	____	____	____	____

22. I feel that my familiarity with

computers and other current engineering tools necessary for practice in the engineering profession was effective. ____ ____ ____ ____ ____

23. Overall I am pleased with the preparation for engineering practice that I received at UW-Platteville. ____ ____ ____ ____ ____

Please answer the following questions.

24. What do you consider to be the strengths of your engineering education?

25. What do you consider to be the weaknesses of your engineering education?

26. What improvements would you recommend for the engineering curriculum at UW-Platteville?

27. Please indicate any other opportunities you have had since graduating from UW-Platteville.

- ☐ Master's Degree
- ☐ MBA
- ☐ PhD
- ☐ Promotions
- ☐ Elected Office
- ☐ Volunteer Organization
- ☐ Seminars/Workshops/Short courses/Conferences
- ☐ Major Project Assignments
- ☐ Patent application
- ☐ Publications
- ☐ Other _____

28. Which resources do you use to keep up-to-date with developments within your profession and/or within technology?

- ☐ News Letters
- ☐ Publications
- ☐ Conferences
- ☐ News Groups
- ☐ Trade Journals/Industry Publications
- ☐ Team Workshops
- ☐ Cross Training
- ☐ Web Searches
- ☐ Other _____

29. Please provide any additional comments regarding the engineering programs at UW-Platteville.

Exit Questionnaire for Graduating Engineers

Assessment of your Academic Preparation

The goal of this evaluation is to provide feed back on curriculum issues only.

1. Listed below are a number of expectations for graduating engineers. Please mark the box corresponding to your evaluation of the curriculum's success in providing you opportunities to fulfill each expectation.

UNDERSTANDING OF PROFESSIONAL AND ETHICAL RESPONSIBILITIES ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO CONDUCT EXPERIMENTS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO ANALYZE AND INTERPRET DATA ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor
ABILITY TO DESIGN A SYSTEM, COMPONENT, OR PROCESS TO MEET DESIRED NEEDS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO IDENTIFY, FORMULATE, AND SOLVE ENGINEERING PROBLEMS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO USE THE TECHNIQUES, SKILLS, AND MODERN ENGINEERING TOOLS NECESSARY FOR ENGINEERING PRACTICE ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor
ABILITY TO FUNCTION ON MULTIDISCIPLINARY TEAMS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO COMMUNICATE IN WRITING EFFECTIVELY ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO COMMUNICATE ORALLY EFFECTIVELY ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor
UNDERSTANDING THE IMPORTANCE OF ENGINEERING SOLUTIONS IN A GLOBAL/SOCIETAL BASED CONTEXT ON A BROAD EDUCATION ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	RECOGNITION OF THE NEED FOR, AND AN ABILITY TO ENGAGE IN LIFE-LONG LEARNING ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor	ABILITY TO APPLY KNOWLEDGE OF MATHEMATICS, SCIENCE, AND ENGINEERING–AT THIS POINT IN THE ENGINEERING EDUCATION PROCESS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Poor

2. What is your assessment of your academic preparation as an engineer ? (Overall academic preparation, not training for specific equipment or software).

☐ Exceptionally well prepared
☐ Very well prepared
☐ Some deficiencies
☐ Very poorly prepared

☐ Satisfactorily prepared

3. What is your assessment of the academic advising you received while at UW - Platteville?

☐ Exceptionally well advised
☐ Very well advised
☐ Satisfactorily advised
☐ Some deficiencies in advising
☐ Very poorly advised

4. What changes would you suggest in the advising process to better assist future graduates?

_____

For Question 5 use the rating scale shown below:

A: Excellent B: Above Avg C: Average D: Below Avg F: Poor

5. Please rate the **Quality** of your preparation in the following Areas.
*Note: if you mark a **D** or an **F** please make sure to comment in the area provided.

	A	**B**	**C**	**D***	**F***	**DID NOT TAKE**
Mathematics :	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Comments:

_____

_____

_____

Chemistry:	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Comments:

_____

_____

_____

Physics:	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Comments:

_____

_____

_____

General Eng.:	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Comments:

_____

_____

_____

Co-op Experience: [ ] [ ] [ ] [ ] [ ] [ ]

Comments:
_____

_____

6. How well prepared were you for the Fundamentals of Engineering Exam? .

[ ] Well prepared [ ] Not well prepared [ ] Did not take

Comments:
_____
_____
_____

7. Please note your responses to the following questions about your education.

What do you view as the strengths?_____
_____
_____

What do you view as the weaknesses?_____
_____
_____

What was missing?_____
_____
_____

What could be eliminated?_____
_____

8. If a close friend or relative were planning to study engineering, would you recommend UW-Platteville?

[ ] Yes [ ] No

Why or Why
Not?_____ _____
_____
_____

The following form is used for assessment by employers of graduates, co-op employers, and Sr. Design Clients**.**

ASSESSMENT OF ACADEMIC PREPARATION Revised 6/16/99

Thank you for completing an assessment of this student's ACADEMIC PREPARATION. We are seeking to provide continuous feedback to the faculty on the civil/environmental engineering curriculum. The information that you provide will be forwarded to the chair of civil & environmental engineering, without reference to the student or company. The goal of this evaluation is to provide feedback on curriculum issues only - NOT an individual student.

UNDERSTANDING OF PROFESSIONAL AND ETHICAL RESPONSIBILITIES ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO DESIGN AND CONDUCT EXPERIMENTS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO ANALYZE AND INTERPRET DATA ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe
ABILITY TO DESIGN A SYSTEM, COMPONENT, OR PROCESS TO MEET DESIRED NEEDS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO IDENTIFY, FORMULATE, AND SOLVE ENGINEERING PROBLEMS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO USE THE TECHNIQUES, SKILLS, AND MODERN ENGINEERING TOOLS NECESSARY FOR ENGINEERING PRACTICE ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe
ABILITY TO FUNCTION ON MULTIDISCIPLINARY TEAMS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO COMMUNICATE IN WRITING EFFECTIVELY ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO COMMUNICATE ORALLY EFFECTIVELY ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe

POSSESSES THE BROAD EDUCATION NECESSARY TO UNDERSTAND THE IMPORTANCE OF ENGINEERING SOLUTIONS IN A GLOBAL/SOCIETAL CONTEXT ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	RECOGNITION OF THE NEED FOR, AND AN ABILITY TO ENGAGE IN LIFE-LONG LEARNING ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe	ABILITY TO APPLY KNOWLEDGE OF MATHEMATICS, SCIENCE, AND ENGINEERING–AT THIS POINT IN THE ENGINEERING EDUCATION PROCESS ☐ Excellent ☐ Very good ☐ Average ☐ Below average ☐ Very poor ☐ Did not have the opportunity to observe

What is your assessment of the student's academic preparation for this position?

☐ Exceptionally well prepared
☐ Very well prepared
☐ Satisfactorily prepared
☐ Some deficiencies
☐ Very poorly prepared

Does it appear that the student's academic program is oriented to the particular needs of your organization?

☐ Yes ☐ No Comments: (Use reverse side if necessary.)

What changes would you like to see implemented in the curriculum to better prepare future students for your organization?