

RESULTS: END-OF-COURSE QUESTIONNAIRE AND STANDARD EVALUATIONS

(See Program A.5- and Instruments in C - Scarborough)

Jule Dee Scarborough, Ph.D. and Jerry Gilmer, Ph.D.

A questionnaire was developed to assess the students' and professors' perceptions of the overall quality of instruction, course content, and the learning environment across the college (Scarborough, 2006). The questionnaire included questions about different areas of instruction such as course objectives and testing activities. The instrument was completed along with the regular end-of-course evaluations of instruction in the professors' classes at the end of the Fall 2005 semester and again at the end of the Fall 2006 semester, and the data between the two years were compared. The questionnaire was from the perspective of the student and primarily intended for student feedback. However, we also used it with the professors and asked them to complete it from their perception of the students' perspective about their course, instruction, assessments, etc. It was interesting to compare the students' perceptions to the professors' perceptions of how the students might respond.

Important Note: Although many of the significance levels are less than .05 (a traditional indicator of statistical significance), due to the length and complexity of the questionnaire and the nature of the students' actual responses, the validity of the data might be questionable. The person scanning the answer sheets on which the students bubbled their responses provided the following warning: "I had a lot of trouble scanning these sheets because of multiple marks; just about half of the sheets were rejected by the scanner because of multiple marks where we were not expecting (or accepting) them. I found this with both the student and faculty groups. My impression is the people filling out this evaluation were not paying attention to what they were doing or not closely reading the questions and instructions. I also remember having the same problem with the sheets last December." In all cases where there appears to be statistical significance, the 2006 scores were higher than the 2005 scores. However, if the students are not paying attention to the actual questions and simply filling in bubbles on the answer sheet, the scores will tend to be higher than they would otherwise due to the scoring methodology.

Also Important Note: When we reported what the person scanning answer sheets indicated (above) to the professors and asked them about the questionnaire administration, they felt that it was administered the same as it was in the 2005 classes, that the time allocated was approximately the same, that the students did take it seriously, and that the students seemed to focus when completing it. They also felt that they, themselves, took it seriously and that they completed the questionnaire as they should have. They wondered why the person scanning did not mention his doubts about the 2005 questionnaire then, rather than now, and questioned memory as reliable. The professors all felt that the results for both the 2005 and 2006 questionnaires could be used without suspicion and that the results provided good information and feedback. A summary of the statistical significance levels for the scores from the professors, all students combined, and the cohort of students from each professor's class is presented in the table below.

See Instrument on pages 9-24 below. A copy without point values is in Volume III, Portfolio Section C.10

Table B.4.1: Statistical Significance Levels Comparing Scale Means Between Scores from Fall 2005- Fall 2006

Content Area	Results from All Professors and All Students		Results from Students in Each Professor's Class						
	All 7 Professors	All Students	Ibrahim Abdel-Motaleb	Abul Azad	Briano Collier	Abhijit Gupta	Reinaldo Moraga	Regina Rahn	Robert Tatara
Objectives & Syllabus Items (101-104)	0.005	0.407	0.975	0.971	0.708	0.577	0.114	0.023	0.581
Testing & Measurement Items (105-111)	0.000	0.000	0.000	0.420	0.002	0.000	0.009	0.000	0.286
Learning & Teaching Methods Items (112-117)	0.010	0.000	0.001	0.150	0.210	0.008	0.134	0.000	0.222
Cooperative & Group Learning Items (118-124)	0.020	0.000	0.000	0.451	0.071	0.487	0.008	0.019	0.000
Language Item (125)	0.361	0.896	0.690	0.028	0.441	0.805	0.308	0.489	0.511
All Engineering Courses Items (126-136)		0.754	0.978	0.108	0.586	0.133	0.574	0.392	0.416
Project Total Items (101-125)	0.000	0.000	0.000	0.402	0.024	0.038	0.109	0.000	0.075
Overall Total Items (101-136)		0.000	0.000	0.418	0.044	0.019	0.099	0.001	0.050

Shaded cells indicate statistical significance beyond the .05 level.

The following tables present the scale means and standard deviations for each scale separately for the professors' responses and for the students' responses.

Table B.4.2: Professors

Scale	Year	N	Mean	SD	Sig. Level
Objectives & Syllabus (101-104)	Fall 2006	7	18.9	1.3	0.005
	Fall 2005	7	15.6	2.1	
Testing & Measurement (105-111)	Fall 2006	7	21.4	2.2	0.000
	Fall 2005	7	13.4	2.3	
Learning & Teaching Methods (112-117)	Fall 2006	7	21.1	4.3	0.010
	Fall 2005	7	13.4	5.1	
Cooperative & Group Learning (118-124)	Fall 2006	7	14.6	3.9	0.020
	Fall 2005	5	6.6	6.2	
Language (125)	Fall 2006	7	3.6	0.5	0.361
	Fall 2005	7	3.1	1.1	
All Engineering Courses (126-136)	Fall 2006	0			
	Fall 2005	0			
Project Total (101-125)	Fall 2006	7	79.6	9.3	0.000
	Fall 2005	5	51.4	7.9	
Overall Total (101-136)	Fall 2006	0			
	Fall 2005	0			

Table B.4.3: Students

Scale	Year	N	Mean	SD	Sig. Level
Objectives & Syllabus (101-104)	Fall 2006	146	12.8	5.0	0.407
	Fall 2005	160	12.4	5.1	
Testing & Measurement (105-111)	Fall 2006	134	17.8	3.7	0.000
	Fall 2005	146	12.7	3.4	
Learning & Teaching Methods (112-117)	Fall 2006	129	16.8	7.6	0.000
	Fall 2005	138	12.5	5.9	
Cooperative & Group Learning (118-124)	Fall 2006	131	10.3	4.3	0.000
	Fall 2005	106	6.4	6.1	
Language (125)	Fall 2006	132	3.3	1.0	0.896
	Fall 2005	145	3.3	1.0	
All Engineering Courses (126-136)	Fall 2006	120	14.9	5.6	0.754
	Fall 2005	129	14.6	6.3	
Project Total (101-125)	Fall 2006	122	62.3	14.7	0.000
	Fall 2005	90	48.9	15.3	
Overall Total (101-136)	Fall 2006	113	78.1	17.1	0.000
	Fall 2005	82	62.4	17.0	

Table B.4.4: Professors – SPSS Output

Group Statistics

Scale	Year	N	Mean	Std. Deviation	Std. Error Mean
Objectives & Syllabus (101-104)	Fall 2006	7	18.8571	1.34519	0.50843
	Fall 2005	7	15.5714	2.14920	0.81232
Testing & Measurement (105-111)	Fall 2006	7	21.4286	2.22539	0.84112
	Fall 2005	7	13.4286	2.29907	0.86897
Learning & Teaching Methods (112-117)	Fall 2006	7	21.1429	4.29839	1.62464
	Fall 2005	7	13.4286	5.09435	1.92548
Cooperative & Group Learning (118-124)	Fall 2006	7	14.5714	3.86683	1.46152
	Fall 2005	5	6.6000	6.18870	2.76767
Language (125)	Fall 2006	7	3.5714	0.53452	0.20203
	Fall 2005	7	3.1429	1.06904	0.40406
All Engineering Courses (126-136)	Fall 2006	0			
	Fall 2005	0			
Project Total (101-125)	Fall 2006	7	79.5714	9.25306	3.49733
	Fall 2005	5	51.4000	7.89303	3.52987
Overall Total (101-136)	Fall 2006	0			
	Fall 2005	0			

Table B.4.5: Professors – SPSS Output

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Objectives & Syllabus (101-104)	Equal variances assumed	0.658	0.433	3.429	12	0.005	3.28571	0.95831	1.19773	5.37370
	Equal variances not assumed			3.429	10.076	0.006	3.28571	0.95831	1.15262	5.41880
Testing & Measurement (105-111)	Equal variances assumed	0.048	0.830	6.615	12	0.000	8.00000	1.20937	5.36500	10.63500
	Equal variances not assumed			6.615	11.987	0.000	8.00000	1.20937	5.36469	10.63531
Learning & Teaching Methods (112-117)	Equal variances assumed	0.005	0.943	3.062	12	0.010	7.71429	2.51931	2.22517	13.20340
	Equal variances not assumed			3.062	11.670	0.010	7.71429	2.51931	2.20789	13.22069
Cooperative & Group Learning (118-124)	Equal variances assumed	3.689	0.084	2.762	10	0.020	7.97143	2.88591	1.54122	14.40164
	Equal variances not assumed			2.547	6.219	0.042	7.97143	3.12986	0.37796	15.56489
Language (125)	Equal variances assumed	0.809	0.386	0.949	12	0.361	0.42857	0.45175	-0.55572	1.41286
	Equal variances not assumed			0.949	8.824	0.368	0.42857	0.45175	-0.59649	1.45363
All Engineering Courses (126-136)	Equal variances assumed	0.048	0.830	5.508	10	0.000	28.17143	5.11440	16.77584	39.56702
	Equal variances not assumed			5.669	9.564	0.000	28.17143	4.96903	17.03089	39.31197
Project Total (101-125)	Equal variances assumed	0.658	0.433	3.429	12	0.005	3.28571	0.95831	1.19773	5.37370
	Equal variances not assumed			3.429	10.076	0.006	3.28571	0.95831	1.15262	5.41880
Overall Total (101-136)	Equal variances assumed	0.048	0.830	6.615	12	0.000	8.00000	1.20937	5.36500	10.63500
	Equal variances not assumed			6.615	11.987	0.000	8.00000	1.20937	5.36469	10.63531

Table B.4.6: Students – SPSS Output

Group Statistics

Scale	Year	N	Mean	Std. Deviation	Std. Error Mean
Objectives & Syllabus (101-104)	Fall 2006	146	12.8493	4.98874	0.41287
	Fall 2005	160	12.3688	5.12439	0.40512
Testing & Measurement (105-111)	Fall 2006	134	17.8060	3.66548	0.31665
	Fall 2005	146	12.6507	3.44332	0.28497
Learning & Teaching Methods (112-117)	Fall 2006	129	16.7597	7.60425	0.66952
	Fall 2005	138	12.4638	5.94151	0.50578
Cooperative & Group Learning (118-124)	Fall 2006	131	10.2672	4.32137	0.37756
	Fall 2005	106	6.4151	6.12080	0.59450
Language (125)	Fall 2006	132	3.2879	0.96922	0.08436
	Fall 2005	145	3.3034	1.00225	0.08323
All Engineering Courses (126-136)	Fall 2006	120	14.8500	5.57553	0.50897
	Fall 2005	129	14.6124	6.31752	0.55623
Project Total (101-125)	Fall 2006	122	62.3443	14.74341	1.33481
	Fall 2005	90	48.9333	15.25793	1.60833
Overall Total (101-136)	Fall 2006	113	78.1062	17.13151	1.61160
	Fall 2005	82	62.4268	16.96185	1.87312

Table B.4.7: Students – SPSS Output

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Objectives & Syllabus (101-104)	Equal variances assumed	0.139	0.709	0.830	304	0.407	0.48057	0.57914	-0.65907	1.62020
	Equal variances not assumed			0.831	302.718	0.407	0.48057	0.57843	-0.65769	1.61882
Testing & Measurement (105-111)	Equal variances assumed	2.549	0.111	12.134	278	0.000	5.15529	0.42486	4.31894	5.99163
	Equal variances not assumed			12.102	272.016	0.000	5.15529	0.42600	4.31661	5.99396
Learning & Teaching Methods (112-117)	Equal variances assumed	8.252	0.004	5.162	265	0.000	4.29592	0.83225	2.65727	5.93458
	Equal variances not assumed			5.120	242.111	0.000	4.29592	0.83908	2.64309	5.94876
Cooperative & Group Learning (118-124)	Equal variances assumed	29.849	0.000	5.667	235	0.000	3.85208	0.67972	2.51297	5.19120
	Equal variances not assumed			5.470	182.766	0.000	3.85208	0.70426	2.46255	5.24161
Language (125)	Equal variances assumed	0.041	0.840	-0.131	275	0.896	-0.01557	0.11870	-0.24924	0.21810
	Equal variances not assumed			-0.131	273.987	0.896	-0.01557	0.11851	-0.24887	0.21773
All Engineering Courses (126-136)	Equal variances assumed	2.354	0.126	0.314	247	0.754	0.23760	0.75736	-1.25411	1.72930
	Equal variances not assumed			0.315	246.330	0.753	0.23760	0.75395	-1.24742	1.72261
Project Total (101-125)	Equal variances assumed	0.030	0.862	6.450	210	0.000	13.41093	2.07924	9.31208	17.50978
	Equal variances not assumed			6.416	188.166	0.000	13.41093	2.09008	9.28794	17.53392
Overall Total (101-136)	Equal variances assumed	0.087	0.768	6.335	193	0.000	15.67937	2.47493	10.79798	20.56075
	Equal variances not assumed			6.345	175.683	0.000	15.67937	2.47100	10.80270	20.55603

See Instrument on pages 9-24

TRADITIONAL END-OF-COURSE EVALUATIONS
Jule Dee Scarborough, Ph.D. and Jerry Gilmer, Ph.D

The traditional end-of-course evaluations were only indirectly related to the components and content of this project. For that reason and due to the number and variety of factors that can affect end-of-course evaluations, confounding year-to-year comparisons, no analyses involving these evaluations was performed.

It is suggested that in the round of classroom research that professors design the research to include the traditional course evaluation as a factor in the research.

Traditional end of course evaluations - Fall 2005

		# of Sheets	Item											Average
			1	2	3	4	5	6	7	8	9	10	11	
Ibrahim	Abdel-Motaleb	14	4.50	2.43	3.50	4.14	3.36	3.64	4.43	3.57	3.36	3.93	3.38	3.66
Abul	Azad	11	4.73	4.36	4.27	4.36	4.27	3.82	4.36	4.64	4.64	4.27	4.55	4.39
Brianno	Coller	54	4.83	4.23	4.25	4.53	4.02	3.52	4.57	4.72	4.62	4.17	4.54	4.36
Abhijit	Gupta	37	4.72	3.53	3.19	3.58	3.81	3.06	3.69	4.06	4.11	3.94	3.74	3.77
Reinaldo	Moraga	16	3.88	2.44	2.44	2.31	1.69	1.94	3.00	3.00	3.06	2.69	2.00	2.59
Regina	Rahn	16	4.88	4.44	4.31	4.31	4.50	4.21	4.75	5.00	4.94	4.38	4.56	4.57
Bob	Tatara	8	4.88	4.13	4.25	4.38	4.13	3.50	3.88	4.75	4.50	4.38	4.38	4.29

Traditional end of course evaluations - Fall 2006

		# of Sheets	Item											Average
			1	2	3	4	5	6	7	8	9	10	11	
Ibrahim	Abdel-Motaleb	19	4.63	3.74	3.53	3.58	3.63	4.00	4.32	4.47	4.16	4.37	3.68	4.01
Abul	Azad	12	4.91	3.55	3.91	4.09	4.36	3.64	4.55	4.00	4.00	4.36	4.18	4.14
Brianno	Coller	59	4.90	4.36	4.16	4.30	3.86	3.36	4.45	4.57	4.53	4.36	4.48	4.30
Abhijit	Gupta	32	4.72	3.16	3.06	2.69	2.69	2.50	3.59	4.41	4.47	4.16	3.52	3.54
Reinaldo	Moraga	14	4.21	3.29	3.36	3.79	2.64	3.29	4.14	4.21	3.92	4.00	3.38	3.66
Regina	Rahn	14	5.00	4.71	4.86	4.71	4.71	3.86	4.50	5.00	5.00	4.43	4.86	4.69
Bob	Tatara	19	4.68	3.89	4.21	3.84	3.47	3.63	3.58	4.37	4.47	4.32	3.95	4.04

		Fall 2005		Fall 2006	
		# of Sheets	Mean	# of Sheets	Mean
Ibrahim	Abdel-Motaleb	14	3.66	19	4.01
Abul	Azad	11	4.39	12	4.14
Brianno	Coller	54	4.36	59	4.30
Abhijit	Gupta	37	3.77	32	3.54
Reinaldo	Moraga	16	2.59	14	3.66
Regina	Rahn	16	4.57	14	4.69
Bob	Tatara	8	4.29	19	4.04

PROFESSORS -- READ OUT LOUD CAREFULLY to students before handing out questionnaires.

To: Participating students

Fr: Dean

Re: New initiative to study the quality of instruction, course content, and the learning environment across the college

The following questionnaire is being administered to selected classes across the college and its four departments. As students in those classes, you are being asked to participate in providing baseline information about the quality of instruction, course content, and the learning environment in the college. It is important to take note of the following:

(a) The first part of the questionnaire relates only to this course.

(b) The second part of the questionnaire relates to your experience across all the courses you have taken in your major department.

(c) This questionnaire **does not seek** information about your experience in any courses outside the major department (e.g. general education or courses transferred to NIU).

Your responses to these questions will be used as baseline information to study how to strengthen the quality of education across the college.

We are hoping that you will complete this questionnaire **thoughtfully, seriously, and genuinely**, with the understanding that **it is important** and **will assist us** in structuring a college initiative to study and strengthen the quality of instruction, course content, and the learning environment across the college.

In testing the questionnaire with students, it took about 20 minutes; therefore, we are allowing 30 minutes of class time to complete the questionnaire in class.

The questionnaire is somewhat long, but not as long as it may seem because the questions have been written in a way that hopefully describe thoroughly what we are seeking information about. Also the print is regular sized, and we have spaced and printed the document for easier reading.

Please attend to each item carefully and respond to the best of your ability. We need your input. It is important that you respond honestly, genuinely, and with sincerity as the results of the survey will greatly impact the Dean's new initiative on the quality of education for students in the college.

Thank you for investing your time and serious effort to help us begin this very important initiative.

End of Course Questionnaire on Teaching and Learning
Jule Dee Scarborough (2006)

After completing the student and course information on the front side of the scan form, respond to the following questions on the back side of the form beginning with item 101.

Questions 101-124 focus on the course you are now ending. Please respond to 101-124 based upon your experience in this course only.

101. The course syllabus identified specific learning objectives.

- 2 a. Yes, and I understood them
- 1 b. Yes, but I didn't understand them
- 0 c. I don't know
- 0 d. No, there were no learning objectives

Max Points Possible = 2.

102. The learning objectives for this course were chosen or required by: (Select all that apply.)

- 1 a. Future employers
- 0 b. Department head
- 0 c. Professor's interests
- 1 d. Accreditation agency
- 1 e. NIU General Education Goals
- 0 f. I don't know

Max Points Possible = 3

103. The course syllabus specified: (Select all that apply)

- 1 a. course or student learning objectives
- 1 b. course description
- 1 c. clearly defined course content
- 1 d. clearly defined assignments, labs, papers, projects, tests, or other important assignments or activities
- 1 e. the course schedule or timeline identifying meeting dates, assignment due dates, and the semester's schedule
- 1 f. additional explanations of course requirements that established the criteria for each assignment
- 1 g. references other than the text, e.g. books, websites, articles, other sources related to course content
- 1 h. contact information for professor, instructor, and/or graduate teaching or lab assistants

Max Points Possible = 8

104. The professor (and any assistants): (Select all that apply)

- 1 a. focused content and learning activities on the course or student learning objectives throughout the semester
- 1 b. provided learning that seemed to align with the course description
- 1 c. taught the course content specified in the syllabus
- 1 d. followed the assignments, labs, papers, projects, tests, or other important assignments or activities outlined and defined in the syllabus
- 1 e. followed the course schedule or timeline specified in the syllabus (e.g., meeting dates, assignment due dates, and the semester's schedule)
- 1 f. graded assignments according to the written explanations for course requirements establishing the criteria for each assignment
- 1 g. was(were) available, using the contact information for professor, instructor, and/or graduate assistants
- 1 h. deviated from the syllabus by adding appropriate content to expand, deepen understanding, or resolve questions resulting in adding value to the course; any additional assignments were appropriate having reasonable timelines
- 1 i. deviated from the syllabus inappropriately where additions to the information provided on the syllabus, or new assignments added, were irrelevant or distracting and added little or no value to the course or learning; new assignments were untimely and caused unnecessary stress for students
- 1 j. The course was well organized, structured, and executed.

Max Points Possible = 8

105. Which of the following methods were used by the professor to measure learning? (Select all that apply)

- 1 a. final exam - traditional test
- 1 b. midterm exam - traditional test
- 1 c. quizzes and/or short tests periodically-traditional test(s) (e.g., multiple-choice or true/false)
- 1 d. quizzes and/or short tests periodically - short answer and/or essay
- 1 e. research or learning paper (s), usually requiring literature search or field research and formal write-up
- 1 f. case study(ies) in industry, usually requiring a report or short paper write-up
- 1 g. hands-on technical project(s)
- 1 h. hands-on non-technical project(s)
- 1 i. other types of performances, "doing" something
- 1 j. course portfolio, full documentation of all work and progress in the course
- k. other; write a description here:

Max Points Possible = 10

106. Select ALL the descriptions below that identify the methods being used in this course to measure student learning:

- 1 a. Learning was measured on my ability to memorize terminology, symbols, facts, information, theory, principles, concepts, information, definitions, descriptions
- 2 b. Learning was measured on my ability to make comparisons to determine similar and dissimilar examples, understanding relationships and connections between and among facts, concepts, theories, principles, translates knowledge into a new context, interpret facts, predict consequences, order, group information, contrast, distinguish, estimate, differentiate, discuss, or extend knowledge
- 3 c. Learning was measured on my ability to use information, methods, concepts, theories in new situations; problem solving - this requires choosing and applying knowledge (e.g., the best formula, concept, principle, theory to solve problems), using inductive reasoning to determine the best methods, techniques, tools, strategies to apply towards a best solution; this method of measurement can range from a test item with a complex problem to be solved or a hands-on technical problem requiring the design and building of something mechanical. The key to this method is that it requires application of knowledge – "doing" (demonstrate, calculate, illustrate, show, solve, examine, modify, relate, change, experiment, discover).
- 4 d. Learning was measured on my ability to recognize patterns in information, problems, and situations; the ability to organize parts, identify or discover "hidden" meanings, and/or identify components; this requires one to analyze, separate thoughts, processes, problems, order, explain, connect, classify, and divide, compare, select, explain, and/or make inferences (indirect meanings); this requires deductive reasoning where one begins with facts and information, makes choices to gradually discover the bigger picture
- 5 e. Learning measured my ability to hypothesize, design, support argument, schematize, write, report, justify, choose, evaluate, estimate, judge, criticize, defend, use old ideas to create new ones, extending the old idea into a new one for extended applications, make choices based upon reasoned argument, verify value of evidence, recognize when subjectivity is being used rather than objectivity (more scientific), make sound generalizations from given facts, relate and use knowledge across different contexts, predict and draw conclusions, combine, integrate, modify, rearrange, substitute knowledge, plan, formulate, compare and discriminate between, summarize, and make conclusions
- 6 f. Learning measured my ability to design, discover, invent, develop, create, research; transform knowledge into a product, process, technique, model, method, strategy, etc.

Points for only highest level response only. Max Points Possible = 6

107. Select the response that best describes the relationship between the traditional tests you have taken to date in this course (e.g. multiple-choice, true/false items, etc.) and the course content .

- 3 a. the content of the test(s) was related to the content specified in the syllabus, and only to content specified in the syllabus.
- 2 b. the content of the test(s) **was related** to the content specified in the syllabus **and** other content provided by the professor or assistants.
- 1 c. the content of the test(s) **did not relate** to the content specified in the syllabus **but did relate** the other content provided by the professor or assistants.
- 0 d. the content of the test(s) **related to neither** (1) the content specified in the syllabus, **nor** (2) the other content provided by the professor or assistants.

Max Points Possible = 3

Items 108-111 relate to the measurement of student learning through performance(s) rather than traditional tests. * Consider the definitions below when responding to items 108-111.**

***** Definitions:**

*****Performance Task (or assessment)** - *any authentic or real-world task designed to measure student learning. Such a task can be used to determine what students can "do" with knowledge. Unlike some traditional tests, performance tasks require students to move to another level of providing evidence of learning - that of applying or using knowledge by performing authentic tasks, such as designing a part or product, or designing and then producing the part or product. Writing a paper would provide evidence of research skills and communication skills, for example.*

(108) Performance tasks were used to measure student learning in this course. (*see definition above)

- 1 a. Yes (according to the definition above)
- 0 b. No (according to the definition above)

Max Points Possible = 1

*****Rubric** - *any type of information sheet or form, check off sheet that establishes the levels of performance criteria for performance tasks; these criteria establish standards for performance and the criteria for each standard. They are used to provide students information about what is required to achieve a particular number of points or grade. See attached example at end of questionnaire following this page; then continue to complete the questionnaire..*

(109) Rubrics were used for scoring or grading the performances in this course.

- 1 a. Yes (according to the definition below)
- 0 b. No (according to the definition below)

Max Points Possible = 1

(110) Below are examples of some performance tasks; identify any that are similar to performances that you had to accomplish during this course. Select all that apply:

- 1 a. Writing a paper
- 1 b. Working problems, showing the entire equation worked out manually, through each step of the equation
- 1 c. Designing a product part, entire machine, other major design project
- 1 d. Designing an industrial production system
- 1 e. Designing electrical circuitry or full electrical/electronic system
- 1 f. Designing and producing a part using manufacturing processes, e.g. actually producing product using manufacturing production equipment in a lab or on-site in industry

Max Points Possible = 6

(111) Select all examples of performance tasks below (similar) where a rubric or performance criteria form was used to score or grade the performance(s) during this course.

- 1 a. Writing a paper
- 1 b. Working problems, showing the entire equation worked out manually, through each step of the equation
- 1 c. Designing a product part, entire machine, other major design project
- 1 d. Designing an industrial production system
- 1 e. Designing electrical circuitry or full electrical/electronic system
- 1 f. Designing and producing a part using manufacturing processes, e.g. actually producing product using manufacturing production equipment in a lab or on-site in industry

Max Points Possible = 6

112. The following items related to levels of learning and how learning takes place.

(Select ALL that apply)

- 1 a. the learning of basic knowledge requiring me to list, name, identify, show, define, recognize, recall, state, visualize, state facts, concepts, theories, principles, and/or information?
- 2 b. the comprehension or greater understanding of knowledge through activities that required me to summarize, explain, interpret, describe, compare, paraphrase, differentiate, demonstrate, classify, or contrast facts, information, concepts, theories, principles?
- 3 c. the application or opportunity to “do” or “perform,” using knowledge, requiring me to solve problems, illustrate, calculate, use, interpret, relate, manipulate, apply, modify facts, concepts, theories, information, or data?
- 4 d. analytical activities that required me to analyze and organize facts, data, and information; deduce patterns, and trends; contrast, compare, distinguish, differences or similarities; and then discuss solutions, directions and plan or devise actions?
- 5 e. the synthesis and evaluation of facts, information, data, situations, problems, and furthermore require me to argue rationally, support or justify a method, solution, action, choice of formula, theory, concept, principle or result in the need to propose a hypothesis, following with the design of an experiment, product, process, technique, and/or make judgments that had to be critiqued and defended and finalized into reports, summaries, or papers.
- 6 f. the design, discovery, invention, development, creation, research, or transformation of knowledge into products, processes, techniques, models, methods, strategies, etc., using design and development, research, experimentation, and/or development knowledge, techniques, procedures, and tools?

Points for highest level only. Max Points Possible = 6

113. This course engaged me in (Select one response)

- 0 a. learning knowledge and skills to use when I get a job.
- 1 b. learning knowledge and skills to use when I get a job, but also provided the opportunity to apply that knowledge in class through projects or activities where performing tasks using that knowledge were required
- 0 c. neither (a) nor (b), very well

Max Points Possible = 1

114. The following list identifies and briefly describes teaching methods the professor may use during instruction. (Select all that apply)

- 1 a. the professor lectures information and connections; I listen and take notes, if I choose
- 1 b. the professor focuses or presents content, then breaks the class into student groups to discuss the content, then engages in summarizing and clarifying the content as a group.
- 1 c. the professor focuses or presents content, then assigns individual but short term projects using the content or information, e.g. problem to solve, design project, analysis.
- 1 d. the professor focuses or presents content, breaks the class into student groups to discuss the content, and then engages in a short term group project using the content or information (e.g., problems to solve, design project, analysis)
- 1 e. lessons are broken down in components; as individual students master each component, they are tested. When they pass the test, they go on to the next component.
- 1 f. the professor uses visual charts, displays, a wide range of graphic organizers or other visuals to better organize and present information; to show relationships between concepts and principles; and to increase understanding about the application of foundation concepts or principles.
- 1 g. when presenting content, the professor uses examples that are and are not representative of the concept or principle. Students compare the examples and match those that represent the concept or not; gradually as more examples that are and are not representative are reviewed, the group reaches consensus of what examples directly represent the content and come away with greater understanding.
- 1 h. lessons require that we combine concepts and analyze the relationships of concepts; we then engage in solving problems.
- 1 i. during the lessons, the professor asks us to identify and enumerate information related to concepts as they are demonstrated, grouping concepts into categories with common attributes.
- 1 j. we learn information on concepts through the act of classification, gathering and classifying information to build and test hypotheses; they engage in experiments and the results of experiments are used to develop hypothesis generalizations about the situation, idea, or problem.

Max Points Possible = 10

115. The following list identifies and briefly describes additional teaching methods the professor may use during instruction. (Select all that apply)

- 1 a. students are presented with generalizations and examples and engage in trying to identify the individual situation or idea that is embedded (move from problem to why something happens)
- 1 b. students are presented with a problem and then create questions to be used to solve the problem. Students engage in a process of investigation and explanation of the phenomena.
- 1 c. students engage in a formally organized court case to present information and arguments about the ingrained issues.
- 1 d. students are instructed on each component of the content, and all must be successful on that content before the professor moves on with new or more complex content
- 1 e. lessons break skills down into components and sequences of action; each person learns the skill step by step the same way
- 1 f. lessons begin by focusing on a current situation; analogies are used to define the characteristics of the situation; analogies continue, using other graduated analogies until it appears to have no relationship to the origin; the lesson then uses the final description of the analogy to compare to the original situation
- 1 g. lessons engage us in the development of physical skills, such as welding
- 1 h. the professor uses metaphors to make content more familiar
- 1 i. lessons focus on personal development, free expression of ideas and feelings, furthering your self-understanding
- 1 j. students explore problems through actions developing problem solving skills; we participate and/or observe

Max Points Possible = 10

116. My professor exhibited the following styles of instruction throughout the semester. (Select all that apply.)

- 1 a. professor makes all decisions on what, where, when, and how learning takes place; is the expert; strives for precision, synchronization, and uniformity; determines what is taught and how it will be evaluated
- 1 b. students are given a number of tasks to do while in class; students can ask questions; professor moves around and gives feedback
- 1 c. students provide feedback to each other; one student performs while another provides feedback; professor designs forms to guide the observations; socialization is inherent in this style; students develop feedback skills
- 1 d. feedback is provided by you as the individual learner to yourself; other events providing external feedback facilitate your ability to do this; professor helps you become a better evaluator, thus, increasing your self-esteem about working independently
- 1 e. we select our own level of performance and alter it according to my/our self-evaluation; the professor determined the tasks and defined the levels of difficulty
- 1 f. professor leads students to discover concept by answering a series of questions; professor determines concepts and best sequences for guidance; friendly environment with time to think built into the learning opportunity; professor traces a series of questions leading to the answer
- 1 g. professor presents question; students use logical and critical thinking to discover solutions; students determine questions to ask rather than the professor; professor respects the student process and does not interfere
- 1 h. professor encourages students to find multiple solutions to given problems; professor selects the subject and designs the problem; there is no one right answer; professor responds to student process rather than the value of a solution or answer
- 1 i. the student and professor select the content to be learned; the student designs, develops, and performs the series of tasks **and/or** students select the activity, design the experiences, perform the tasks; professors assist/consults with the evaluation of tasks
- 1 j. students are empowered to take full responsibility for the learning process; they are not required to consult with the professor

Max Points Possible = 10

117. Which of the following best describes this course?

Choose the one item that comes closest to describing your experience in this course.

- 0 a. The professor assumes the entire responsibility for delivering the course content. He/she lectures all information we are expected to learn. The text is used as a reference. Lectures reflect text content.
- 0 b. The professor assumes the entire responsibility for delivering the course content in combination with assigned readings from the textbook. The lectures and text content provide all the information we are expected to learn. Most lectures correlate directly or are duplication of text content.
- 0 c. Students are assigned reading from the text to gain basic course content. My professor explains difficult content from the text and then adds lectures on some important or critical content that is not covered in the text, thus expanding or deepening understanding and ability to use the information from the text.
- 1 d. Students are responsible for some of their own learning. For example, once a concept or principle is explained by the professor and we have used the text for basic learning, as a source or reference, we then have to perform research on content ourselves to deepen our understanding of the concept and its application possibilities. We have to bring the information back to class to share with the professor and class. Student activities can vary from literature research, case studies, identifying additional sources of information, e.g. books, people, examples, demonstrations, etc. Students are required to learn on their own or in small groups to deepen understanding or extend learning and understanding beyond that presented by the professor or established learning activities.
- 2 e. The professor assigns reading from the text, explains difficult content, and then provides content to deepen or extend the basic text content or to clarify or explain content not well understood. Students are responsible for some of their own learning, and we then engage in research to solidify our understanding of the content. Ultimately, the professor then assigns projects that expand learning into the "doing" dimension where we used the content learned to solve a problem, develop a product, construct a theoretical model, use materials, processes, and knowledge to create, etc.
- 3 f. Students are responsible for a great deal of their own learning. After working with us in a variety of ways, many of them are highly engaging students to learn important knowledge and skills where the professor is more of a learning coach, direction setter, source of validation, someone who models an inquiry driven process of learning, with a strong focus on "how" and "why" processes. He/she provides the opportunity to engage in the creation of a solution to an identified need or problem, applying the knowledge and skills learned earlier or throughout the learning processes throughout the semester.

Max Points Possible = 3

118. This course provided the opportunity to work cooperatively in small groups to accomplish the learning of course content. (Select one)

1 a. Yes

0 b. No

Max Points Possible = 1

119. When working together, we sought outcomes that benefited me individually as well as the whole group. (Select one)

2 a. Most of the time

1 b. Some of the time

0 c. Not really

0 c. No opportunity to work in groups

Max Points Possible = 2

120. When working with others, I feel that we maximized my own learning and the learning of others. (Select one)

2 a. Most of the time

1 b. Some of the time

0 c. Not really

0 d. No opportunity to work in groups

Max Points Possible = 2

121. Working in groups provided greater opportunity for everyone to learn more and resulted in higher grades for all. (Select one)

2 a. Most of the time

1 b. Some of the time

0 c. Not really

0 d. No opportunity to work in groups

Max Points Possible = 2

122. When you were required to work in student groups throughout the course, were those group assignments formally organized with criteria for performance? (Select one)

2 a. Most of the time

1 b. Some of the time

0 c. Not really

0 d. No opportunity to work in groups

Max Points Possible = 2

123. When you were required to work in student groups throughout the course, did the professor provide formal and specific team related instruction on how to function effectively and productively on a team? (Select one)

1 a. Yes

0 b. No

Max Points Possible = 1

124. Working in groups results in:

(Select as many as apply b-i; if you choose response a, move on to question 125)

- 0 a. there was no opportunity to work in groups
(if you choose this selection, move on to question 125)
- 1 b. higher achievement and productivity by all or almost all members of the group
- 1 c. longer term retention of knowledge being learned
- 1 d. intrinsic (inside myself) and higher motivation to achieve by all or almost all members of the group; greater focus and time on task
- 1 e. higher level thinking, reasoning, deeper analysis of problems, better judgments
- 1 f. more positive relationships between most students or among group members and more caring about each other's learning and success; feelings of more support in learning
- 1 g. greater value of diversity among group members; greater cohesion among students in the course
- 1 h. the development of higher self-esteem among most students; further development of self identify
- 1 i. development of social skills so that students learn to engage with each other in a positive manner, even when conflicting ideas are on the table
- 1 j. greater ability to cope with adversity and stress

Max Points Possible = 9

125. The professor's language skills were not a barrier in communication between the professor and students.

- 4 a. Strongly agree - the professor's language skills were exceptionally good; very effective communication took place between the professor and students.
- 3 b. Agree - the professor's language skills were good; there was effective communication between the professor and students.
- 1 c. Disagree - the professor's language skills need to improve for effective communication to occur between the professor and students.
- 0 d. Strongly Disagree - the professor's language skills were inadequate for effective communication between the professor and students; poor language skills resulted in communication barrier between the professor and students.

Max Points Possible = 4

Unlike Items 101-125 above which focused on THE course you are NOW in and completing, the following questions are focused more broadly.

For Items 126-136, reflect on your experience across ALL the courses you have taken in engineering and/or technology to date. Provide your perspective by generalizing across ALL the courses that you have taken in engineering and/or technology to date and respond to Items 125-135 below.

126. The professors teaching the engineering and/or technology courses that I've taken to date in my major: (Select one)

- 3 a. seem exceptionally competent and knowledgeable
- 2 b. seem competent and knowledgeable
- 1 c. seem adequate in their knowledge
- 0 d. professor's knowledge seems questionable

Max Points Possible = 3

127. The professors teaching the courses that I've taken in engineering and/or technology teach in a way that: (Select one)

- 2 a. motivates me to want to learn and perform in those classes at a very high level; they keep me interested, excited, and make me realize that I have chosen the right field or career track for me
- 1 b. keeps me interested most of the time so that I perform above average most of the time
- 0 c. is difficult for me to maintain my interest in the courses; it is often difficult to remain interested all the way through each class; I feel I can read the book and take the tests and still perform well enough for an adequate grade
- 0 d. truly causes me to be less motivated to perform, making it almost impossible to remain interested in the courses or content being covered

Max Points Possible = 2

128. The learning environment in the college and department is positive in the following ways: (Select all that apply)

- 1 a. the learning environment and climate are positive
- 1 b. there is appropriate technology, computer labs, specialized technology related to each discipline
- 1 c. there are good labs, lab equipment,
- 1 d. there is adequate student work space for assignments, projects, group meetings, etc.
- 1 e. administrators are approachable and helpful (e.g., the department chairs (heads) and dean)
- 1 f. faculty are available, approachable, professional, and helpful
- 1 g. department and college staff are available, professional, and helpful in solving problems or meeting student needs, and friendly
- 1 h. faculty take extra time, or go the extra mile, and are available to support and assist students in solving problems or meeting their needs
- 1 i. the academic advising I have received is of high quality and accurate
- 1 j. graduate teaching or lab assistants seem to be knowledgeable and competent

Max Points Possible = 10

129. The learning environment in the college and department needs to improve the following:

(Select all that apply)

- 1 a. the learning environment and climate
- 1 b. technology, computer labs, specialized technology related to each discipline
- 1 c. labs and lab equipment,
- 1 d. student work space for assignments, projects, group meetings, etc.
- 1 e. administrators approachability and willingness to be helpful (e.g., the department chairs (heads) and dean)
- 1 f. faculty availability, approachability, professionalism, and willingness to be helpful
- 1 g. department and college staff are availability, professionalism, and helpfulness in solving problems or meeting student needs, and friendliness
- 1 h. faculty willingness to take extra time, or go the extra mile, and be available to support and assist students in solving problems or meeting their needs
- 1 i. academic advising
- 1 j. knowledge and competence of graduate teaching or lab assistants

Max Points Possible = 0

130. Generally, when considering course quality, the courses I've taken so far seem to have had well planned content, sound academic purpose, appropriate and well designed lab activities, and excellent execution of student learning activities by the professor and/or grad assistant.

(Select one)

- 3 a. strongly agree
- 2 b. most or many do
- 1 c. some (less than half) do
- 0 d. most or many do not

Max Points Possible = 3

131. The courses that I've taken so far seem to have been well-structured and organized with clear learning objectives that are focused, purposeful; the courses have had well designed and developed syllabi that clearly explain the expectations of the professor for the course and a schedule or timeline provides an understanding of the events, due dates, and activities for the semester.

(Select one)

- 3 a. strongly agree
- 2 b. most or many do
- 1 c. some (less than half) do
- 0 d. most or many do not

Max Points Possible = 3

For Items 132-136, consider the connections between course syllabi, assignments, and schedule for all the courses you taken to date; when generalizing across ALL the courses you have taken in engineering or technology, most of your professors: (Select one response for each 132-134)

132. covered the course content specified in the syllabus, expanding when appropriate

1 a. yes

0 b. no

Max Points Possible = 1

133. adhered to the assignments specified in the syllabus and didn't add anything significant

1 a. yes

0 b. no

Max Points Possible = 1

134. progressed through the course according to the schedule plan in the syllabus

1 a. yes

0 b. no

Max Points Possible = 1

135. In most of my courses, the tests (or other methods of measuring student learning such as projects, etc., papers, research, etc.) are directly linked and connected to the content described in the syllabus. (Select one)

2 a. Yes, most of the time

1 b. Usually, but there are some major deviations from the syllabi across courses

0 c. Less than half of the time; there is a lot of content on tests, or content that we are required to know and use for projects, etc. that was not specified on course syllabi

-1 d. There has often been a “dis-connect” between the knowledge and/or skills that we were tested on or required to use on projects, etc. and what was specified on course syllabi across the courses I have taken

Max Points Possible = 2

136. In most of my courses, the tests (or other methods of measuring student learning such as projects, etc., papers, research, etc.) are directly linked and connected to the content covered by the professors. (Select one)

2 a. Yes, most of the time

1 b. Usually, but there have been some major deviations by the professors across courses

0 c. Less than half of the time; there is a lot of content on tests or content that we were required to know and use for projects, etc. that was not specified on course syllabi or covered by the professors or assistants.

-1 d. There has often been a “dis-connect” between the knowledge and/or skills that we were tested on or required to use on projects, etc. and what was covered by the professors or assistants. A lot of course content was not covered by the professors or assistants.

Max Points Possible = 2