End of Course Questionnaire on Teaching and Learning

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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 <u>this course only</u>.

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. <u>Select ALL</u> 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 <u>inductive</u> 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 <u>deductive</u> 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 <u>similar</u> 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 (s<u>imilar</u>) where a rubric or performance criteria <u>form</u> 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 <u>when</u> I get a job.

1 b. learning knowledge and skills to use when I get a job, <u>but also</u> provided the opportunity <u>to apply</u> 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 <u>additional</u> 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 dos 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 assists/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 <u>were not</u> a barrier in communication between the professor and students.

4 a. <u>Strongly agree</u> - the professor's language skills were <u>exceptionally good</u>; very effective communication took place between the professor and students.

3 b. <u>Agree</u> - the professor's language skills were <u>good</u>; there was effective communication between the professor and students.

1 c. <u>Disagree</u> - the professor's language skills <u>need to improve</u> for effective communication to occur between the professor and students.

0 d. <u>Strongly Disagree</u> - the professor's language skills were <u>inadequate</u> 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 <u>learning environment</u> in the college and department <u>needs to improve</u> 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 <u>course quality</u>, 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