**Colorado State University – Pueblo  Academic Program Assessment Report for AY 2012-2013**          **Due:  June 1, 2013**

**Program:**  MSISE                                                                                      **Date:  5/30/13**

**Completed by:**   H. SARPER and N. JAKSIC

**Assessment contributors (other faculty involved in this program's assessment):**     Drs. Sarper, Bedoya, Jaksic, Fraser, DePalma, Yuan, and Paudel

Please complete this form for <u>each undergraduate, minor, certificate, and graduate program</u> (e.g., B.A., B.S., M.S.) in your department.  Please copy any addenda (e.g., rubrics) and paste them in this document, and return it to Erin Frew, <u>erin.frew@colostate-pueblo.edu</u> as an email attachment before June 1, 2013. You'll also find the form at the assessment website at <u>http://www.colostate-pueblo.edu/Assessment/Resources/Pages/default.aspx</u>. Thank you.

**I. Program student learning outcomes (SLOs) assessed in this cycle, processes, results, and recommendations.**

| A. Which of the program SLOs were assessed during this cycle? **Please include the outcome(s) verbatim from the assessment plan.** | B. When was this SLO last assessed? | C. What method was used for assessing the SLO? **Please include a copy of any rubrics used in the assessment process. (Attached)** | D. Who was assessed? Please fully describe the student group. | E. What is the expected achievement level and how many students should be at it? | F. What were the results of the assessment? | G. What were the department's conclusions about student performance? | H. What changes/improvements to the <u>program</u> are planned based on this assessment? |
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| Apply industrial engineering knowledge in facility design, operations planning, operations | May 2013 | **Methods**:EN 577 Project Reports  & Exit Interviews **Rubrics**: Design Strategy, Solutions, and | Eight (8) MSISE graduate students were enrolled in Spring 2013. | 80% or more of the students should meet or exceed expectations. | In the research project report, composed of a literature review, a | Since 88% of the students performed well we conclude that the goal was met.  The 12% of the | No changes to the program are planned at this time due to this SLO as we are adjusting to the new assessment plan.  A more precise |

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| research, and simulation | | Tools | | | detailed review and the replication and expansion of a current topic on IE, 88% of the students in EN 577 were able to demonstrate their knowledge on IE when dealing with current problems.<br><br>Exit interviews are generally positive and indicative of learning for this SLO. | students that struggled came from different engineering backgrounds.<br><br>We are satisfied that a current comprehensive project was successfully completed by students. | assessment description (based on rubrics) seems to be needed.<br><br>We will address indirect methods metrics for possible redesign to better fit the SLO's. |
| Apply engineering principles in the design and analysis of a system or process to | May 2013. | **Methods:** EN 575 Project Reports & Exit Interviews **Rubrics:** Design Strategy and Constraints and | Two MSISE graduate students who were enrolled in Fall 2012 | 80% or more of the students should meet or exceed expectations | 100% of the students in EN 575 were able to solve complicated problems on facilities | All students (100%) performed well. However, no firm conclusions could be reached due to small sample size. | Encourage the instructor to continue using real world projects. |

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| meet specified needs | | Variables | | | layout and location by using optimization and continuous improvement. Exit interviews are generally positive and indicative of learning for this SLO. | | |
| Communicate effectively in writing and orally. | May 2013. | **Methods:** Paper Evaluation in EN 593 and Presentation Evaluation both in EN 520 and EN 593 & Student Surveys. **Rubrics:** *written:* Articulation, organization, neatness, grammar and spelling, writing style, document | Twelve (12) first year MSISE graduate students who were enrolled in EN 593 (fall 2012) and 11 MSISE graduate students who were enrolled in EN 520 in Spring 2013 | 80% or more of the students should meet or exceed expectations | Students in EN 593 wrote papers about a potential thesis topic. 10 out 12 or 83% met and exceeded the expectation for this SLO. In EN 520, all 11 students met and exceeded the expectation for the paper presentation. Students in EN 520 wrote | The goal of 80% minimum was met. Course specific student surveys were not done in EN 593 because the current plan was developed in Spring semester. Surveys were also not done in EN 520 because there was little time to plan for them. | Effective communication rubrics will be disseminated to the students. We will make sure that paper and presentation evaluations are done with strict adherence to all components of this rubric. Also, we will ensure that course specific surveys are developed and administered in the future. |

| | | formatting *Oral:* Delivery, length and detail, mechanics, dialect, visual aides, appearance, and listening and response to questions | | | and presented a research project composed of a literature review, a detailed analysis and the replication and expansion of a current problem on IE solved by using simulation. Student surveys were not done this year. | | |
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Comments:

**B. Follow-up (closing the loop) on results and activities from previous assessment cycles. In this section, please describe actions taken during this cycle that were based on, or implemented to address, the results of assessment from previous cycles.**

None- because last year's plan was not specific for certain courses and was very different than the current plan.

| A. What SLO(s) did you address? Please include the outcome(s) verbatim from the assessment plan. | B. When was this SLO last assessed? | C. What were the recommendations for change from the previous assessment? | D. Were the recommendations for change acted upon? If not, why? | E. What were the results of the changes? If the changes were not effective, what are the next steps or the new recommendations? |
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Comments:

# Assessment Rubrics

**Apply industrial engineering knowledge in facility design, operations planning, operations research, and simulation**

| | Exceeds expectations 5% | Meets expectations 75% | Does not meet expectations 20% |
|---|---|---|---|
| **Design Strategy** | Develops a design strategy, including a plan; decomposes work into subtasks, and develops a timetable. | Uses a design strategy with guidance. | No design strategy is attempted. |
| **Solutions** | Develops several potential designs and based on the analysis of those designs finds an optimal design solution using the system view approach. | Can develop and compare multiple solutions to a problem, but does not usually arrive at the best result; conducts optimization but neglects one or two key aspects. Does not use the system view approach. | Cannot design a system or individual component without significant amount of help. Only focuses on one solution to a problem; no optimization attempted. |
| **Tools** | Uses computer tools (e.g., LINDO, ARENA, MATLAB, @RISK, PLANTOP) effectively. | There is evidence of mostly correct use of computer tools and engineering resources | There is no evidence of use of computer tools and engineering resources. |

**Apply engineering principles in the design and analysis of a system or process to meet specified needs**

|  | Exceeds expectations 5% | Meets expectations 75% | Does not meet expectations 20% |
|---|---|---|---|
| **Design Strategy** | Develops a design strategy, including a plan; decomposes work into subtasks, and develops a timetable. | Uses a design strategy with guidance. | No design strategy is attempted. |
| **Constraints & Variables** | Develops a solution that includes realistic constraints and stochastic variables when necessary | Develops a deterministic solution only that fails to include one or more minor realistic constraints and potential randomness in data. | There is no consideration of realistic constraints. |

## Communicate effectively in written form

| | Exceeds expectations 5% | Meets expectations 75% | Does not meet expectations 20% |
|---|---|---|---|
| **Articulation** | Articulates ideas clearly and concisely using visual aids where appropriate. | Articulates ideas, but the idea flow is somewhat disjointed. Does not always use visual aids appropriately (e.g. a table and a graph representing the same information are used; a figure is not addressed in the narrative). | Does not develop/articulate Ideas well. Makes points that are hard to understand. Does not use visual aids. |
| **Organization** | Organizes the material in a logical sequence (paragraphs, subheading, etc.). | In general, organizes the material well, however, occasionally paragraphs combine multiple thoughts; sections and sub-sections are not identified clearly. | Imposes little or no structure or organization; does not use subheadings or proper paragraph structure. |
| **Neatness** | Presents material neatly and professionally | Occasionally, does not present material neatly. | Does not present material neatly. |
| **Grammar and Spelling** | Uses grammar and spelling correctly. | Makes one or two spelling/grammar errors per page. | Makes spelling/grammar errors throughout more than 1/3 of the paper. |
| **Writing Style** | Uses professional writing style. | Sometimes uses jargon, improper voice, improper tense, inappropriate style, etc. | Uses inappropriate writing style for the audience and for the assignment. |
| **Document Formatting** | Conforms to the prescribed format. | Conforms to the prescribed format in many portions of the assignment. | Does not follow the prescribed format. |

# Communicate effectively in oral form

| | Exceeds expectations 5% | Meets expectations 75% | Does not meet expectations 20% |
|---|---|---|---|
| **Delivery** | Plans and delivers an oral presentation effectively; applies the principle of "tell them." | Presents key elements of an oral presentation adequately, but does not apply "tell them" clearly. | Organizes the presentation poorly ( e.g. no clear introduction or summary is delivered). |
| **Length and Detail** | Presents technical content appropriate for the time allowed and the audience level. | Presents excessive or insufficient detail for time allowed and/or the audience level. | Presents for an inappropriately short or long time period; omits key results during presentation. |
| **Mechanics** | Makes eye contact; can be easily heard; speaks comfortably with minimal prompts; does not block the screen; doesn't show any distracting habits. | Exhibits minor difficulties (e.g. makes sporadic eye contact; occasionally is difficult to hear or understand; overuses prompts or does not use prompts enough; occasionally stumbles or loses place; occasionally blocks screen; occasionally exhibits some distracting habits (um, ah, clicking pointer, etc.)). | Exhibits major difficulties with the presentation (e.g. makes no eye contact; is difficult to hear or understand; reads from prepared script; blocks the screen; exhibits distracting habits (um, ah, clicking pointer, etc.)). |
| **Dialect** | Uses proper American English. | Occasionally uses an inappropriate style of English-too conversational; uses understandable English. | Uses poor English and/or poor pronunciation. |
| **Visual Aides** | Uses visual aides effectively. | Presents visual aides that have minor errors or are not always clearly visible. | Presents multiple slides that are unclear or incomprehensible. |
| **Appearance** | Exhibits professional appearance. | Appears too casual for a professional presentation. | Appears inappropriately dressed for the occasion (e.g. wears shorts, sandals, etc.) |
| **Listening and Response to Questions** | Listens carefully and responds to questions appropriately; is able to explain and interpret results for various audiences and purposes. | Sometimes misunderstands questions; does not respond appropriately to the audience, or has some trouble answering questions. | Does not listen carefully to questions; does not provide appropriate answers, or is unable to answer questions about the presentation material. |

Sample MSISE Exit Interview

Name: xxxxx xxxxxx

Date: 04/14/2013

*How did you hear about the MSISE at CSU-Pueblo?*

Brochures in the College of Engineering at CSU (Fort Collins) and via the CSU-Pueblo website

*What other schools and/or degrees did you consider?*

Masters of Science in Engineering (different disciplines) from CSU (Fort Collins), UCCS, CU (Denver & Boulder), Mines, and MIT

*What could be done to make the MSISE Program at CSU-Pueblo more attractive to potential students in the same circumstance you were when you began?*

Information sent to graduating engineers and natural science majors in Colorado colleges possibly, or a better presence at graduate school/career fairs in Colorado colleges

*How was the experience of being a new (International) MSISE student?*

Very good

*What do you think of the degree and education you received at CSU-Pueblo?*

Challenging yet very rewarding

*What are your future plans?*

Working in the transportation industry, putting the skills learned to work as an engineer

*How do you feel your degree and education have prepared you for your intended career?*

I felt very prepared, for the most part, going into the field I have chosen

*How do you feel that your education could have been improved?*

Offering certain courses more than on a rotating basis; I would have liked to take reliability prior to graduating and it would have been useful in the field I entered upon graduation

*Any suggestions for changes in the program*

Refer to question above. Aside from that, maybe provide some type of funding to student to help offset costs of printing theses; for a lengthy thesis, costs are between $200 and $300 (for color on 25% cotton-content paper) wherever you choose to go in town, including the CSU-Pueblo Bookstore. One possibility may be to offer aid for printing copies for the department, library, and thesis committee, and then any printing after that would fall on the student.

*What's the worst thing that happened to you since you got here?*

Not being able to take certain classes I would have like to due to the rotating schedule of Special Topic classes or not being offered more regularly