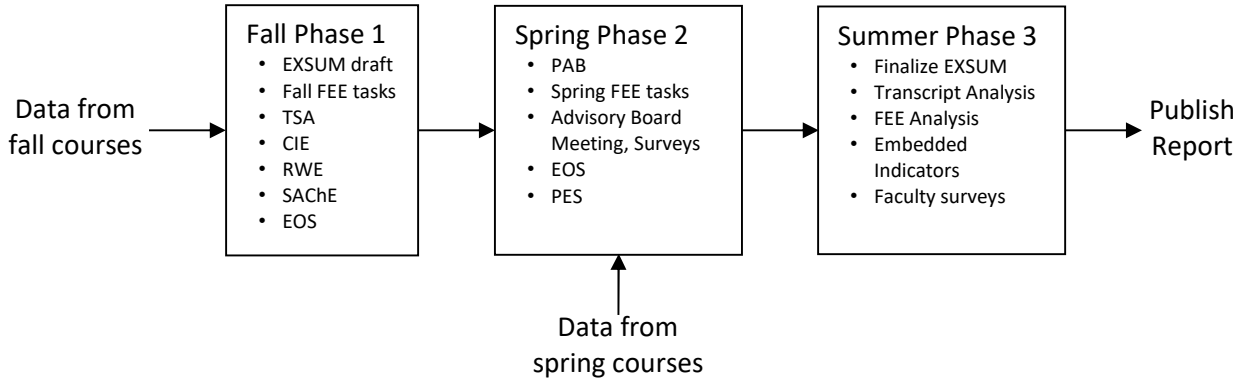
Chemical Engineering Program Assessment Process

Last Updated 9 July 2025



Student Outcomes Surveys (EOS)

1. EOS is required for all Yearlings, Cows and Firsties at the end of each semester, NLT lesson 40.
2. EOS is administered through the CDs in CH365 and CH363 (fall) and CH362, CH364, and CH402 (spring). Filenames for the surveys are as follows:
   - "outcomes_survey_20yy-1_cows.docx"
   - "outcomes_survey_20yy-1_firsties.docx"
   - "outcomes_survey_20yy-2_yearlings.docx"
   - "outcomes_survey_20yy-2_cows.docx"
   - "outcomes_survey_20yy-2_firsties.docx"
3. Data is entered by hand directly from the paper surveys into the analysis spreadsheet. Filenames for the spreadsheet analysis are as follows for the fall and spring surveys:
   - "Program_Outcomes_Surveys_yy1.xls."
   - "Program_Outcomes_Surveys_yy2.xls."
4. Reports are sent back to CDs for use in the course assessments, as soon as all results are analyzed, typically in late December or late May. Filenames for the results reports:
   - "CH363 – end-of-semester ABET survey results.pdf"
   - "CH459 – end-of-semester ABET survey results.pdf"
   - "CH485 – end-of-semester ABET survey results.pdf"
   - "CH362 – end-of-semester ABET survey results.pdf"
   - "CH364 – end-of-semester ABET survey results.pdf"
   - "CH367 – end-of-semester ABET survey results.pdf"
   - "CH400 – end-of-semester ABET survey results.pdf"
   - CH365 and CH402 do not get reports since Dr. Biaglow compiles the results.
5. The results of the analysis are carried forward to MS Word file "Program Assessment Data" and to "Advisory Board Slides - Section 2."

Program Exit Survey (PES)

1. PES is required for all spring-term Firsties during Lesson 40 in CH402.
2. PES is completed in class with discussion.
3. Filename for the survey:
   - "Program_Exit_Survey_AYyy.docx"
4. Filenames for the spreadsheet for analysis:
   - "Program_Exit_Survey_R&A_AYyy.xlsx"
5. Data is entered by hand into the R&A spreadsheet.
6. The results of the analysis are carried forward to MS Word file "Program Assessment Data" and to "Advisory Board Slides - Section 2."

Program Assessment Briefing to Cadets (PAB)

1. PAB is presented to Firstie cadets in early January in CH400, typically near lesson 2.
2. The briefing is a discussion of program educational objections, their relevance to USMA and the Army, and previous year's assessment.
   - The filename is "Program Assessment Briefing yy January 20yy.pptx."
3. A survey is conducted in tandem with the briefing.
   - The filename is "AY2x I Blank Survey – zz January 20##.docx"
4. The data from the surveys is entered into the excel R&A spreadsheet.
   - The filename is "20yy Faculty, Advisory and Cadet Surveys R&A w STDEV.xlsx."
5. The results are consolidated into a report sent to the program faculty.
   - "AY2x Cadet Surveys - Survey Report - yy January 20zz.docx."
6. The results of the analysis are carried forward to MS Word file "Program Assessment Data."

Transcript Analysis

1. Complete transcripts are typically available in AMS a few days after the end of the term and are printed directly from AMS.
2. For each chemical engineering cadet, transfer the letter grades from selected courses in the transcript into the spreadsheet.
3. Filename for the spreadsheet analysis:
   - "Transcript Analysis – AYyy.xlsx"
4. The results of the analysis are carried forward to MS Word file "Program Assessment Data" and to "Advisory Board Slides - Section 2."

Analysis of Embedded Indicators

1. Embedded indicator spreadsheets are due from chemical engineering CDs at the close of each semester within 1 week of submission of final grades.
2. Filename for the course assessments from the CDs:
   - "CHxxx AYyy Student Outcomes Assessment.xlsx." (This is the "1/0" spreadsheet.) For example, "CH459 AY25 Student Outcomes Assessment.xlsx."
3. Filenames for the spreadsheet analysis:
   - "AYyy Embedded Indicators Analysis.xlsx." For example, "AY25 Embedded Indicators Analysis."

    - "AYyy Embedded Indicators Year-to-Year R&A.xlsx." For example, "AY25 Embedded Indicators Year-to-Year R&A.xlsx."
4. Go to the third tab ("program") in each of the course assessment files and transfer the numbers to the embedded indicators analysis worksheet.
5. Transfer the data from the embedded indicators worksheet to the year-to-year R&A worksheet.
6. Contact the Mechanical Engineering Program Director for the course assessment packets for ME301 and ME362 (Dr. Emine Foust in AY25).
7. Filenames used in AY14 for the course assessments:
    - "ME301 AYyy Course Assessment.docx" (renamed by us to "ME301 AYyy assessment.")
    - "ME362 AYyy Course Assessment.docx" (renamed by us to "MC362 AYyy assessment.")
8. Look near the end of these documents for embedded indicators parsed by major and locate the scores for the chemical engineering cadets. This was "Appendix C. Course Objectives Assessment" on page 14 in ME301 and page 12 in ME362. Transfer the results into the conversion spreadsheet to put the results on a 0-5 scale to homogenize them with the chemical engineering program. The filename is
    - "AY2x Embedded Indicators from ME301 and ME362."
9. Transfer the results to the embedded indicators analysis spreadsheet.
10. Each graph in the embedded indicators analysis worksheet needs to be copied and pasted into the "Program Assessment Data.docx."
11. The results of the analysis are carried forward to MS Word file "Program Assessment Data" and to "Advisory Board Slides - Section 2."

<u>Teamwork Skills Assessment for Student Outcome 5 (TSA)</u>

1. POC is the CH459 course director. Coordinate surveys with CD before start of fall semester during course development.
2. Surveys must go out to cadets immediately after each lab project and are due at the end of the last lab session.
3. Filename for the cadet surveys is:
    - "AYyy_SO5_Teamwork_Assessment_Rubric_Working_Blank.docx"
5. For each cadet, transfer the scores from the survey into the analysis spreadsheet. Filename for the spreadsheet analysis:
    - "AYyy_SO5_Teamwork_Assessment Rubric_Analysis_Peers.xlsx"
4. When finished, transcribe the GLAT and TAL averages from the analysis spreadsheet data into the program assessment rubric:
    - "AYyy_SO5_Teamwork_Assessment_Rubric_Working__Data_RoundRobin1.docx"
5. The results of the analysis are carried forward to MS Word file "Program Assessment Data."
    - I used snapshots of pdf files for this as it seems to work best.

<u>Contemporary Issues Essay to Assess ability to Acquire New Knowledge for Student Outcome 7 (CIE)</u>

1. POC is the CH485 course director (LTC Cowart in AY25)
2. Rubrics are used to assess the performance of cadets in CH485 Writing Assignment.
3. The filename for the rubric is:
    - "AY2x_SO7_Contemporary_Issues_Grading_Rubrics_CYH485.docx"
4. The CD transfers the average scores and standard deviations to the data summary sheet. Use a blank rubric for data presentation. Convert the cadet rubric into a fillable form in pdf.

- The file name is “AY2x_SO7_Contemporary_Issues_Grading_Rubric_Fillable.pdf”

5. The results of the analysis are carried forward to MS Word file “Program Assessment Data.”
6. I used snapshots of pdf files for this as it seems to work best.

Resume Writing Exercise to Assess Ability to Acquire New Knowledge for Student Outcome 7 (RWE)

1. POC is the CH365 course director (Dr. Biaglow in AY25)
2. Rubrics are used to assess the performance of cadets in CH365 Resume Assignment.
3. The filename for the rubric is:
   - “New Knowledge Rubric AY2x.docx”
4. For each category on the rubric, transfer the average scores and standard deviations to the data summary sheet. Use a blank rubric converted into a fillable form in pdf.
   - The filename for the summary sheet is “New Knowledge Rubric AY25 Fillable.pdf”
5. The results of the analysis are carried forward to MS Word file “Program Assessment Data.”
6. I used snapshots of pdf files for this as it seems to work best.

FE Exam Admin Tasks and Timeline (1-n) list:

1. Gain access to the ‘whois’ feature on AMS **(AUG)**
2. Construct NCEES excel database consisting of the following information
   a. Cadet name and cell number
   b. Home of record
   c. Birthday
   d. Guardian and cell number
   e. C-number
   f. Civilian email address (to contact after graduation)
   g. NCEES test number
   h. NCEES username and password (keep same for everyone) **(OCT)**
3. Construct Delaware Association of Professional Engineering data base
   a. Cadet name and cell number
   b. Home of record
   c. Birthday
   d. Guardian and cell number
   e. C-number
   f. Civilian email address (to contact after graduation)
   g. DAPE number
   h. DAPE username and password (keep the same for everyone) **(OCT)**
4. Register each cadet for DAPE account **(NOV)**
5. Pay for DAPE account with one payment from DEAN; prepare memo to Dean from Program Director to justify DAPE expense. **(NOV)**
6. Dept. Head Senior Status Verification Memo to DAPE. **(NOV)**
7. Have cadets sign and scan DAPE affidavits.
8. Email the affidavits to DAPE. **(NOV)**
9. Register cadets for NCESS account. **(NOV)**
10. Ensure cadets verify accounts with civilian email address**. (NOV)**
11. Dean’s office pays for NCEES accounts.
12. Start going to FEE planning meetings at CME/Systems. **(NOV)**
13. Submit purchase request for ppi2pass web access for CH400; **(DEC)**

14. Schedule the FEE starting 15FEB; through ~1APR…to give first time failures time to retest before graduation)
15. Check NCEES pass/fail, as necessary.
16. Send transcripts to DAPE after graduation.

FE Exam Analysis

1. Obtain NCEES Report from AAD (NCEES POC is Dr. Lachance).
2. Filename is "Spring_20yy_405_EAC_Enrolled-FE."
3. Data usually arrives in mid-July. Last year the file was received from Dr. Lachance on 15 July.
4. The analysis is in the internal program file is "FEE Analysis – AYyy."
5. The data from the analysis is then output to MS Word file "Program Assessment Data" and to "Advisory Board Slides - Section 2."

ABET Advisory Summary

1. Maintain listing of names, emails, addresses, phone numbers and schools/Departments of ABET Advisors. Scrub list once/year.
2. September/October of each academic year consult Department Calendar/ Department Head for 3 to 4 dates in April/MAY to conduct ABET Advisory Meeting.
3. Mid-late October of each academic year, send email the Advisors the proposed dates and gain consensus on best date to conduct the advisory meeting.
4. Roll up the previous academic year assessment results.
5. Build the slides for the meeting and submit them to the Department Head for feedback.
6. Send out the rough draft slides, assessment data and surveys to the ABET Advisors.
7. Put dates on the Department Calendar.
8. Coordinate logistics for meeting: Hotel reservations, conference room, lunch reservations, van.
9. Conduct meeting; have the surveys complete before advisors leaves.

Program Executive Summary (Exsum)

1. The exsum is due on 30 September. Chemical Engineering completes a "preliminary exsum" by the suspense and then a final version after the advisory board meeting.
2. The program assessment is summarized in this document.
3. The actual program assessment data and actual assessment are included as an attachment (enclosure).