

Department of Chemistry and Life Science
United States Military Academy
West Point, New York 10996

MADN-CLS

18 May 2021

MEMORANDUM FOR RECORD

SUBJECT: Chemical Engineering Program Course and Program AARs AY21-2

1. The course assessment meeting for all AY21-2 chemical engineering courses was conducted 18 May 2021. Attendees: LTC Matthew Armstrong, LTC(P) Corey James, Enoch Nagelli, MAJ Trevor Corrigan, Dr. Simuck yuk, and CPT(P) Caspar Yi. The courses discussed were CH362 Material and Energy Balance, CH367 Process Controls, CH365 Chemical Reactor Design, CH402 Chemical Engineering Design and CH400 Chemical Engineering Professional Practice.
2. Each course director presented topics relevant to their specific courses. These topics are outlined in more detail in the individual course assessments. The course director slides coming into the meeting are provided as enclosures.
3. Some of the topics led to broader discussions relevant to the entire program. These included: 1) general communication skills and technical writing abilities, 2) the use of capstone projects to unify a course, 3) problem sets within courses should be reviewed and changed routinely as we continue our 'Anti-CHEGG' operations. In particular, the consensus was that the program needs to develop a unified way to improve communication ability within its major, beginning from the very first courses.
4. POC is the undersigned.

Encl

Course and Program AAR Slides

MATTHEW J. ARMSTRONG
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UNITED STATES MILITARY ACADEMY
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Chemical Engineering Professional Practice

CH400 AY21-2

Course and Program AAR

LTC Matthew Armstrong

18 May 2021



- ☐ **CH400 AAR Comments**
- ☐ **Chemical Engineering Program AAR Comments**



General Overview:

- **Introduction/verify FEE registration (1 Lessons).**
- **Ethics, safety, health, environment, professional practice**
- **Big Topics AY21-2:**
 - **Chemical reaction engineering**
 - **Thermodynamics**
 - **Heat transfer**
 - **Material and energy balance**
 - **Computational tools**
 - **Material science**
 - **Mathematics/probability and statistics**
 - **Process control/ process design and economics**
 - **Fluid mechanics**



- ❑ CH400 serves to assess if cadets have mastery over ^{all} program material and simultaneously prepare for FEE
- ❑ Cadets appreciated entire lesson of probability and statistics review; want that for every block → maintain
- ❑ Continue to maintain rigor of the subject area quizzes each week !
- ❑ Re-invigorate DIST simulator ✓
- ❑ Add additional SSI-Simulator HW/PE...mechanism to review of controls
- ❑ Tremendous amounts of discomfort due to poor performance on quizzes
- ❑ Appeared that a Chemistry review was helpful → continue →
- ❑* Do not apply and Extra Credit or Bonus until after the FEE...this will promote better preparation *
- ❑ Some cadets avoided AI, did not prepare, and failed the FEE → twice !!

- but weak cadets who prepared pass (80% < opp said)
* w/ caveats *

- high CEE R w/ no prep. failed

* have to do physical things *

- can't just show up



- ❑ CH350 ready to go...have to schedule the FDW 31MAY-11JUN
- ❑ To greatest extent possible only instruct/Course Direct one distinct course per semester * → AKNE → *teach on Teams*
- ❑ Get to conferences...for proceedings...then get back and submit drafts
- ❑ Research=1 pub; 2 conf. proceedings; 1-3 cadets in CH289/290/389/390...
- ❑ *Maintain FDW for our electives during summer for new instructors * → CH300 CH300
- ❑ **Stick to the Course Directors Handbook for all administrative guidance**

*CH340 next!

Teams AI good to share screens software

3.0 ET for research courses

- 1 & 2 (to bigflow for figs.)

- Course Assessment

- Historic Report

- Exec. Summer AY 21 (FEE Results JUL)

(17/20 pass FEE 85%)

CH 362: { -hands on lab w/abolishment
Jeff/Casper taught lesson
- add more hands on
- more guest lecturers
- new textbook "Zybook"
*Get away from CHEGG. *
- current lab of papers

CH367:
- IP's not book problems (SUSTAIN)
- Capstone → get away from this → ODES
"water level-controller" → K_I }
→ K_P }

CH364: -not many changes / lots of examples in class
- Levenspiel
Anti-CHEGG OPERATIONS
- changing PS

CH 402: - smooth transition / Capstone work
- piping/pumps/economics
- "off-out" grade technique
*weak on P&ID *USE VISE OR

"more adrefi"



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Guidance/Questions?