Introduction

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Keywords Spiritual Safety, Process Safety, Chemical Engineering, Risk Assessment

Learning Outcomes

- Understand the dual framework of physical and spiritual safety in chemical processes.
- Identify the course structure, including the five modules and key resources like the safety textbook and Learning Suite.
- Recognize the connection between safety culture, stewardship, and professional success in engineering.

Reading

- Safety in Jesus Christ Introduction
- Foundations of Spiritual and Physical Safety: with Chemical Processes by Clint Guymon:
  - Preface
  - Chapter 1: Spiritual and Physical Safety Framework
- Becoming Men and Women of Integrity

1 Stewardship and Safety in Jesus Christ

Jesus Christ taught us to love one another (John 13:34-35) and to care for our bodies as they are temples (1 Corinthians 6:19-20). As stewards of our physical and spiritual well-being, we have a responsibility to ensure safety in all aspects of our lives. This course explores the principles of safety from both spiritual and physical perspectives, emphasizing the importance of ethical decision-making and risk management.

The course is divided up into five modules:

- Module 1: Spiritual Safety and Ethics
- Module 2: Understanding Harm and Risk
- Module 3: Systematic Hazards Analysis

- Module 4: Critical Process Safety Information
- Module 5: Safeguards & Regulations

2 Course Materials

- Learning Suite,
  - Please be patient, Learning Suite will be updated throughout the semester
- This Course GitHub Website,
  - Please be patient, this website will be updated throughout the semester
- Foundations of Spiritual and Physical Safety: with Chemical Processes by Clint Guymon
- Other helpful texts:
  - The Book of Mormon
  - The Bible
  - Chemical Process Safety by Daniel Crowl and Joseph Louvar
  - What Went Wrong? Case Histories of Process Plant Disasters and How They Could Have Been Avoided by T. Kletz

3 Work Expectations

- Lectures (3x's per week),
- Quizzes (In class, 3x's per week based on the reading material),
- Classwork (In class, 0-2x's per week),
- Reading material (prior to each class,)
- Homework (3x per week),
- Mid-term Exams (2-3),
- Final Exam
- Projects
  - Book review,
  - Safety and Ethics Evaluation (analysis, team writeup, and presentation)

4 AI Use

- You are encouraged to use AI to help you learn. You are discouraged from using it to do your work for you. (You climb the mountain to get the experience and views, not have AI give you the views without work.) As such, use AI as a tutor but don't ask it for the answer key. Write your own drafts and have AI help you rewrite those drafts to improve them. You are responsible for your own learning. We'll talk more about AI as a tool AI Tools in Safety.

5 Class Organizations

- Class Groups
- Project Groups

6 Course Grades

- Quizzes
  - 5 lowest scores dropped
- Classwork
- Homework
- Exams
  - Midterms
  - Final
- Projects
  - Book Review
  - Safety or Ethics Evaluation

7 Chemical Engineering Career Outlook

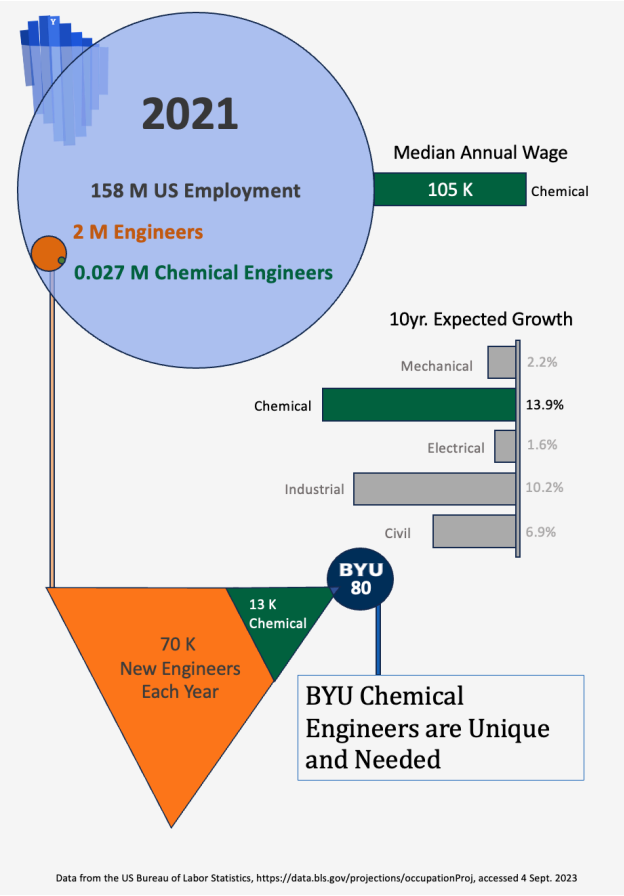

Figure 1: Chemical engineering has a strong career outlook.

Hopefully from the above you can see that BYU chemical engineers are unique and in demand. The skills you will learn in this class will help you to be successful in your career.

8 Current Worldwide Problems in Engineering

Chemical Engineers are poised to help in each of these areas:

- Energy
  - Worldwide `energy demands are growing`
  - We need to use fossil fuels more efficiently and capture more of the biproducts
  - Energy.gov
  - Deseret News Article on Potential Energy Crisis
  - Fry, Memmott, Baxter, Rappleye, Wheeler, and Lignell
- Chemical Production
  - We can continue to `improve chemical production` processes
  - Chemical and Engineering News
  - Argyle, Hedengren, Knotts, Nickerson, Seo, Tree, Wilding
- Health
  - We need to `improve` health care delivery and care
  - World Health Organization
  - Bundy, Pitt, and Lewis
- Water
  - We need to improve water treatment, distribution, and conservation.
  - World Health Organization
- Transportation - How do we better move people and goods around the world?
- Environment - How do we efficiently continue improving our environment?
  - Plastics production and waste handling and reuse needs improvement.
  - Environmental Protection Agency
- Security - How do we continue to adapt and peacefully protect people from threats?
- Exploration, Food, and more...

You are the engineers that will work to improve societies' and individuals' quality of life around the world. Importantly, you can also help gather Israel and prepare the world for the second coming of Jesus Christ.

Action Items

1. Other than those examples used in the text (Page 2)(Guymon, 2025), what other examples are there that relate physical laws to spiritual relationships? Give two examples.
2. How has the invitation to love others helped you build a stronger relationship with a person important to you? Write a descriptive paragraph (3+ sentences).
3. What does it mean to you that through Jesus Christ, our relationship with God can be healed and made whole? Or how has God reached out to you? Write a descriptive paragraph (3+ sentences).
4. What have you learned from a physical injury you experienced? Write a descriptive paragraph.
5. Why would your efforts at work to be more safe positively affect the bottom line (profitability) or the company you might work for? Write a descriptive paragraph.

References

C. Guymon. *Foundations of Spiritual and Physical Safety: with Chemical Processes*. 2025.