

# Pedagogical Approach

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I am excited to ignite an interest in engineering design in your children, especially through a biblical worldview. The following is an overview of my perspective on engineering design through a biblical worldview. I have also provided an overview of my pedagogical approach, including the Engineering Design Process, which I believe to be a lifelong tool and a framework for my courses.

## Engineering Design through a Biblical Worldview

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### Ethics and Values

**Honesty and Integrity:** Emphasize the importance of honesty and integrity in all engineering practices, guiding students in making ethical decisions.

*The Lord detests lying lips, but he delights in people who are trustworthy. Proverbs 12:22*

**Compassion:** Consider the impact of designs on society and create solutions that help others.

*Be kind and compassionate to one another, forgiving each other, just as in Christ God forgave you. Ephesians 4:32*

### Sustainability

**Stewardship:** Encourage stewardship, which involves caring for God's creation and includes sustainable practices and designs that minimize environmental impact and promote the well-being of future generations.

**Environmental Responsibility:** Consider the long-term environmental impacts of designs and prioritize sustainability.

*The Lord God took the man and put him in the Garden of Eden to serve and protect it. Genesis 2:15*

### Teamwork

**Community and Collaboration:** Encourage working together, supporting one another, and valuing each other's contributions.

*For just as each of us has one body with many members, and these members do not all have the same function, so in Christ we, though many, form one body, and each member belongs to all the others. Romans 12:4-5*

**Respect and Support:** Foster a positive and collaborative learning environment where students learn to respect and support their peers.

*Therefore encourage one another and build each other up, just as in fact you are doing. 1 Thessalonians 5:11*

## The Engineering Design Process for Approaching Life's Challenges

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The Engineering Design Process is a foundational tool in engineering and frames my engineering design courses; however, it transcends context. This step-by-step process can be applied to approach any challenge in life, whether it be relational, everyday tasks, or many other hurdles life throws at you. By systematically identifying problems, brainstorming solutions, testing ideas, and refining approaches, students learn valuable and applicable skills not only in engineering but in all aspects of life. This approach fosters critical thinking, creativity, and resilience, enabling students to navigate and overcome various challenges with confidence and competence.

## Experiential Learning Model

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My courses are based on the foundational pedagogy of Experiential Learning Theory, as developed by Kolb. This model emphasizes learning through experience and reflection, allowing students to engage actively with the material and apply their knowledge in real-world or simulated contexts. By participating in hands-on projects and collaborative activities, students develop critical thinking, problem-solving, and teamwork skills that are essential for their personal growth and the future.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Englewood Cliffs, NJ: Prentice-Hall.

Kolb, D. A., & Kolb, A. Y. (2017). *The Experiential Educator: Principles and Practices of Experiential Learning*.

Stock, K., Cola, P., & Kolb, D. (2024). *Educational Experiences Become Experiential When the Learner is Fully Present: There is more to experiential learning than just "having" the experience*. *Experiential Learning and Teaching in Higher Education*, 7(1 - April).