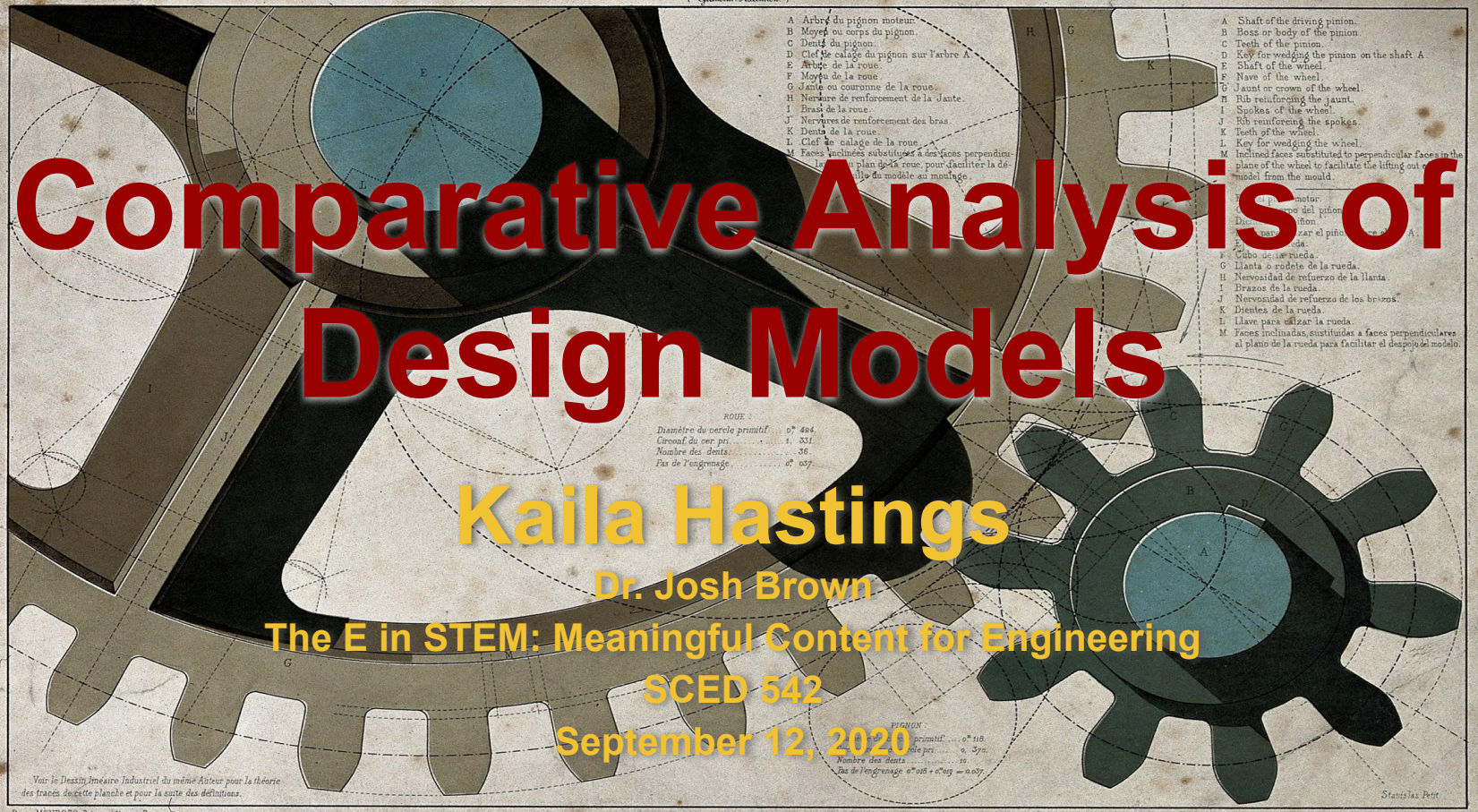

Comparative Analysis of Design Models

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The E in STEM: Meaningful Content for Engineering

SCED 542

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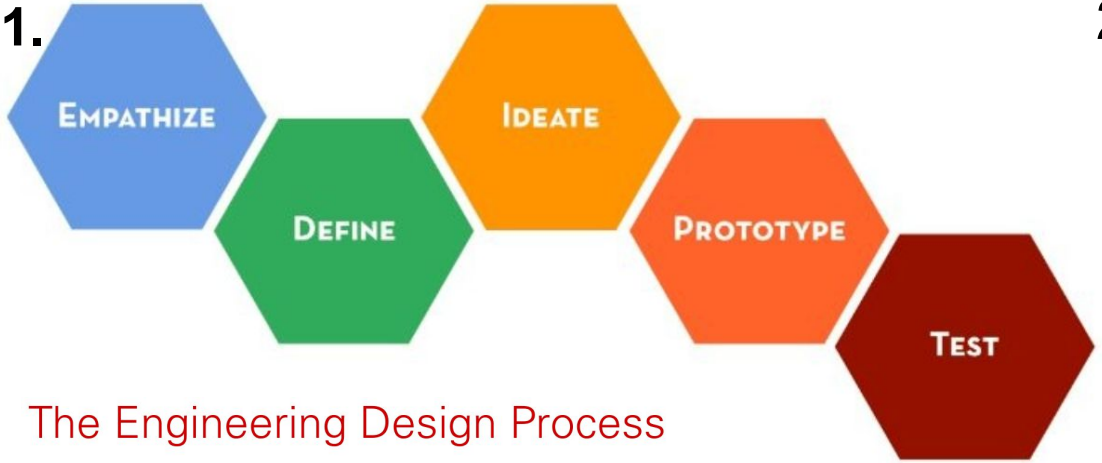
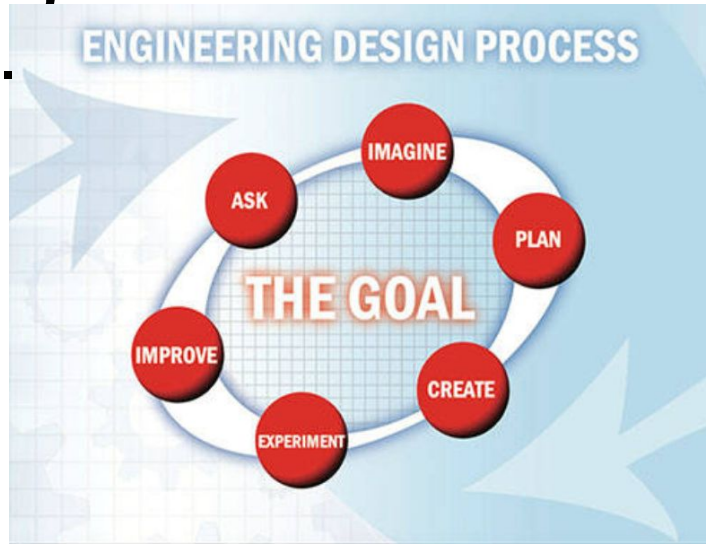
Let's Examine 3 Engineering Design Models

1.



The Engineering Design Process

2.



3.

Models shown:

1. IDEO Engineering Design Model
2. NASA Engineering Design Model
3. NC State University Engineering Design Model

IDEO

- Basic colorful design
- Starts with a unique, human-centered problem solving. Uses empathy.
- Ideations come from user point of view.
- Lacks the individual improvement and redesign steps found in NASA and NC State. Assumed in Testing tile.
- Connects and placement to show the flow of steps without using arrows or bridging.
- No loop back into the cycle.

- Basic design
- All steps surround a common goal.
- Starts with problem
- Constraints must be considered.
- Separates out some components that are merged in the steps of other design process.
- Imagining and planning as separate steps
- Promotes the collection and analysis of data.

- Design is more elaborate- has added details at each step
- Steps surround common goal.
- Follows similar steps of the NASA engineering design process.
- Missing testing as an individualized step.
- Provides arrows representing flow of the steps. Start anywhere.
- Consideration for limitations.
- Failure is part of the process.

TOGETHER THEY ALL ACHIEVE....

- All of these designs serve to solve a problem.
- All designs promote collaboration
- Each model has a planning/ brainstorming/ ideation phase of their models.
- Testing out designs is very important with a focus on revising designs based on results of prototypes.

Sources

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