

- A Arbre du pignon moteur.
- B Moyeu ou corps du pignon.
- C Dent du pignon.
- D Clef de calage du pignon sur l'arbre A.
- E Arête de la roue.
- F Moyeu de la roue.
- G Jante ou couronne de la roue.
- H Nervure de renforcement de la jante.
- I Bras de la roue.
- J Nervures de renforcement des bras.
- K Dent de la roue.
- L Clef de calage de la roue.
- M Faces inclinées substituées à des faces perpendiculaires au plan de la roue pour faciliter la dépose du modèle au moulage.

- A Shaft of the driving pinion.
- B Boss or body of the pinion.
- C Teeth of the pinion.
- D Key for wedging the pinion on the shaft A.
- E Shaft of the wheel.
- F Nave of the wheel.
- G Jant or crown of the wheel.
- H Rib reinforcing the jant.
- I Spokes of the wheel.
- J Rib reinforcing the spokes.
- K Teeth of the wheel.
- L Key for wedging the wheel.
- M Inclined faces substituted to perpendicular faces in the plane of the wheel to facilitate the lifting out of the model from the mould.

ROUE
 Diamètre du cercle primitif . . . 0° 464
 Courb. du cerc. pri. 1 331
 Nombre des dents 36
 Pas de l'engrenage 6° 057

PIGNON
 Diamètre primitif . . . 0° 118
 Courb. du cerc. pri. 370
 Nombre des dents 10
 Pas de l'engrenage 0° 058 - 6° 057 = 0.057

Voir le Dessin Mécanique Industriel du même Auteur pour la théorie des tracés de cette planche et pour la suite des définitions.

Comparative Analysis of Design Models

Kaila Hastings

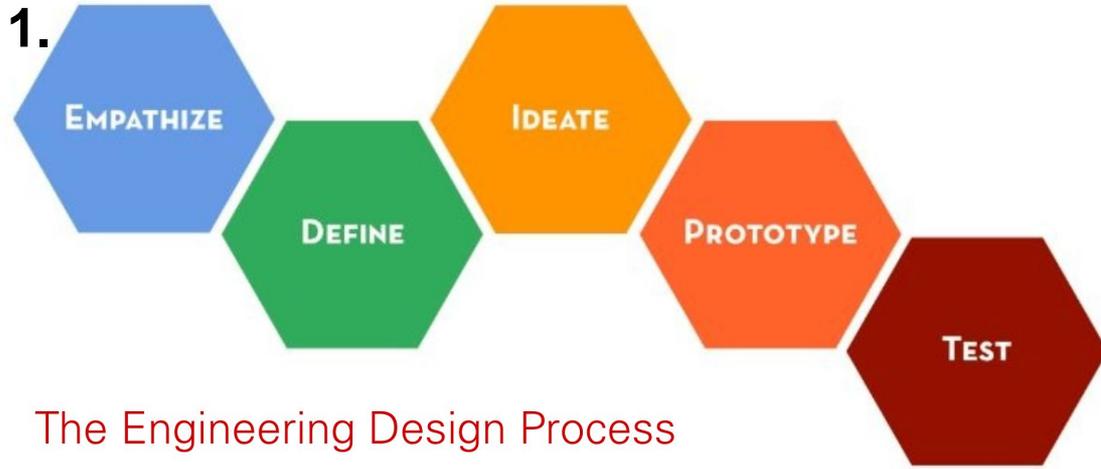
Dr. Josh Brown

The E in STEM: Meaningful Content for Engineering

SCED 542

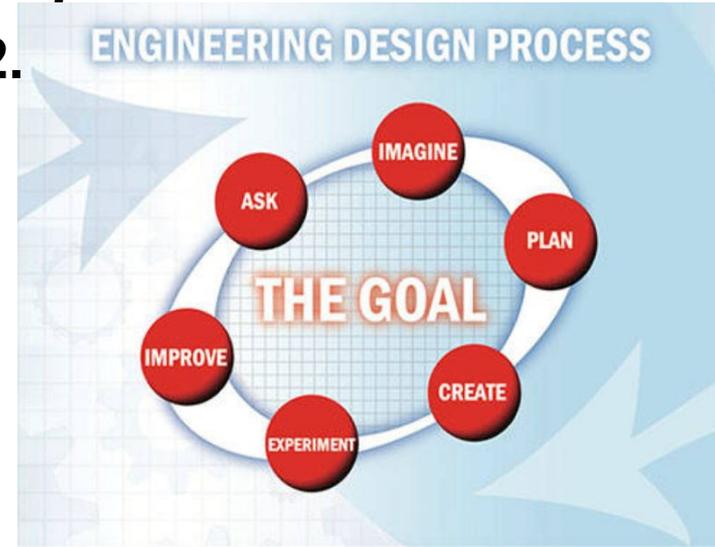
September 12, 2020

Let's Examine 3 Engineering Design Models



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

1. <https://www.engr.ncsu.edu/theengineeringpractice/educators/>
2. <https://www.nasa.gov/audience/foreducators/best/edp.html>
3. <https://www.linkedin.com/pulse/roots-ideos-design-thinking-process-dexter-francis>