The DOE Process

Objective of DOE

- Generate knowledge about your process and the impact of various independent variables
  - Goal of improving process
  - Change control or signal factors, and try to repeat enough to make the noise or experimental error less

DOE Steps

1. **Define the objective**
   -Should reflect the question you are seeking to answer
   -Must be measurable
2. Brainstorm the key factors
3. Determine the levels appropriate for those factors
4. Design the experiment to be compatible with our objective
5. Run the experiment for each of the treatments
6. Run the process to confirm improvements
7. Update the operations sheets

DOE Steps

1. Define the objective
2. **Brainstorm the key factors**
   - *-Process flow diagram or process map helpful*
   - *-Utilize subject matter experts as necessary*
3. Determine the levels appropriate for those factors
4. Design the experiment to be compatible with our objective
5. Run the experiment for each of the treatments
6. Run the process to confirm improvements
7. Update the operations sheets

Kennesaw State University

DOE Steps

1. Define the objective
2. Brainstorm the key factors
3. **Determine the levels appropriate for those factors**
   - *-May use more extreme levels than are currently in use*
   - *-Ensure the measurement system is stable and repeatable*
4. Design the experiment to be compatible with our objective
5. Run the experiment for each of the treatments
6. Run the process to confirm improvements
7. Update the operations sheets

Kennesaw State University

DOE Steps

1. Define the objective
2. Brainstorm the key factors
3. Determine the levels appropriate for those factors.
4. **Design the experiment to be compatible with our objective.**
   - *-The budget will influence the specific design used*
   - *-Screening: begin with a modest exploratory design; then use results to determine which variables and levels need further study*
5. Run the experiment for each of the treatments
6. Run the process to confirm improvements
7. Update the operations sheets

Kennesaw State University

DOE Steps

1. Define the objective
2. Brainstorm the key factors
3. Determine the levels appropriate for those factors
4. Design the experiment to be compatible with our objective
5. **Run the experiment for each of the treatments**
   - *-Collect samples from each run*
   - *-Track each outcome and the levels of the factors that led to it*
6. Run the process to confirm improvements
7. Update the operations sheets

Kennesaw State University

DOE Steps

1. Define the objective
2. Brainstorm the key factors
3. Determine the levels appropriate for those factors.
4. Design the experiment to be compatible with our objective
5. Run the experiment for each of the treatments
6. **Run the process to confirm improvements**
7. Update the operations sheets

Kennesaw State University

DOE Steps

1. Define the objective
2. Brainstorm the key factors
3. Determine the levels appropriate for those factors
4. Design the experiment to be compatible with our objective
5. Run the experiment for each of the treatments
6. Run the process to confirm improvements
7. **Update the operations sheets**

Kennesaw State University