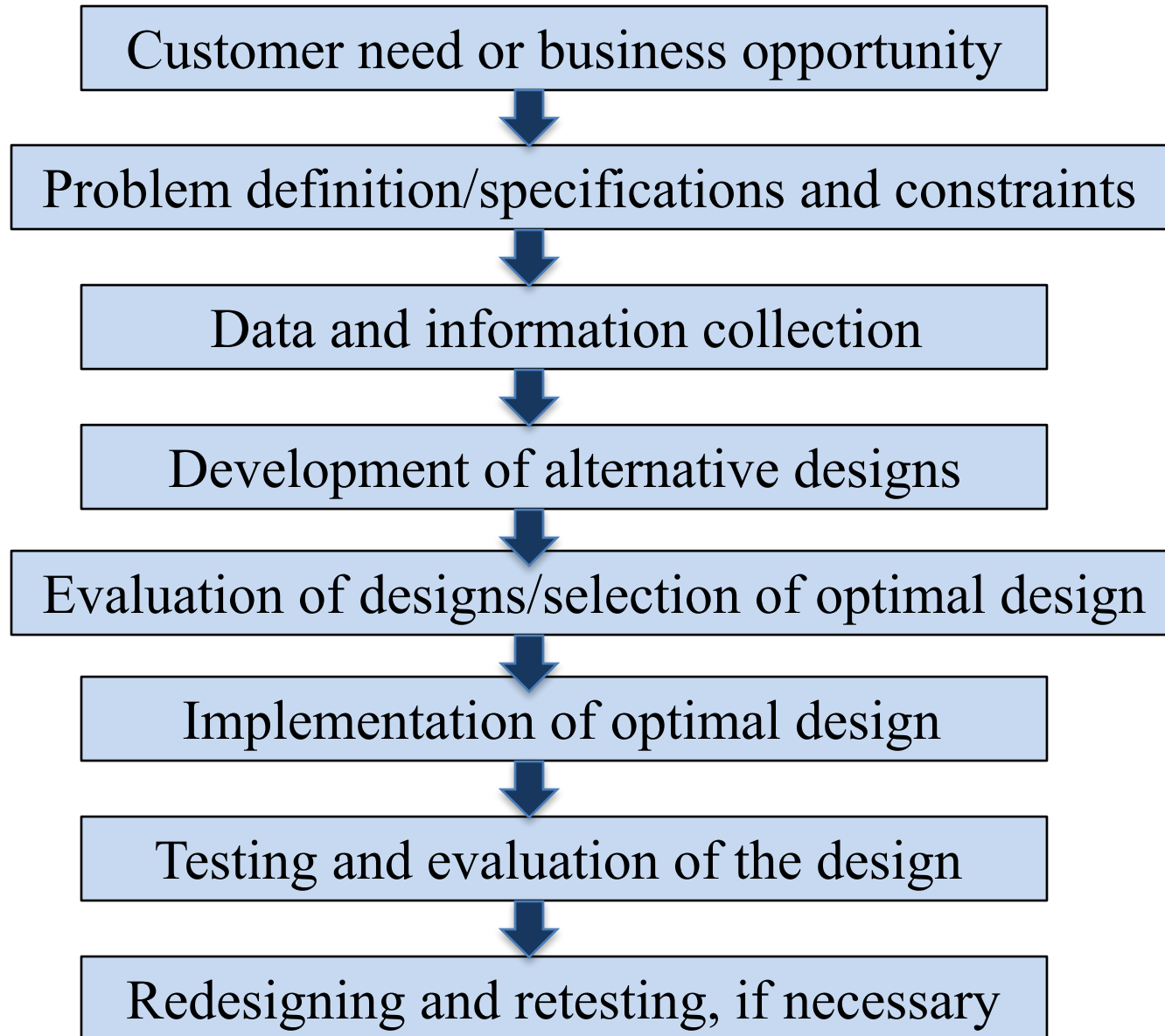# What is Engineering?

"Engineering is the application of science to the common purpose of life." ~Count Rumford

What is the difference between **Science** and **Engineering**?

Science is a quest for "truth for its own sake" for an ever more exact **understanding** of the natural world.

Engineering turns those **explanations** and **understandings** into new or improved machines, technologies, and processes – to bring **reality** to ideas and to provide solutions to **societal needs**.

The Engineering Design Process

Customer need or business opportunity

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Problem definition/specifications and constraints

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Data and information collection

↓

Development of alternative designs

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Evaluation of designs/selection of optimal design

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Implementation of optimal design

↓

Testing and evaluation of the design

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Redesigning and retesting, if necessary

How Things Work

Reverse Engineering is the process of taking apart a device, object, or system to see how it works in order to duplicate or enhance it.

Reverse Engineering might be done out of curiosity or as an academic experience. It is tons of fun.

Look for opportunities to take things apart and figure out how they work.