

**BME 590: FUNDAMENTALS OF
ENGINEERING DESIGN**

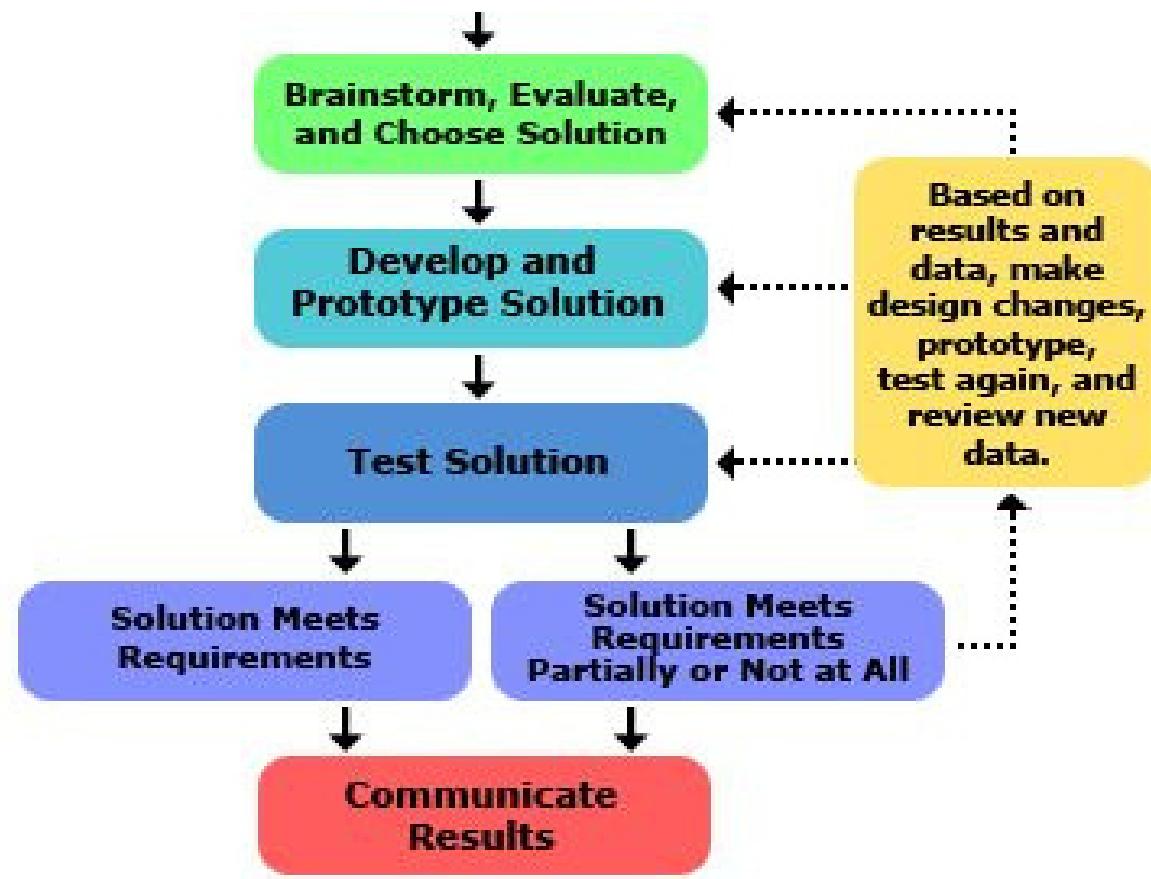
DESIGN SPECIFICATIONS

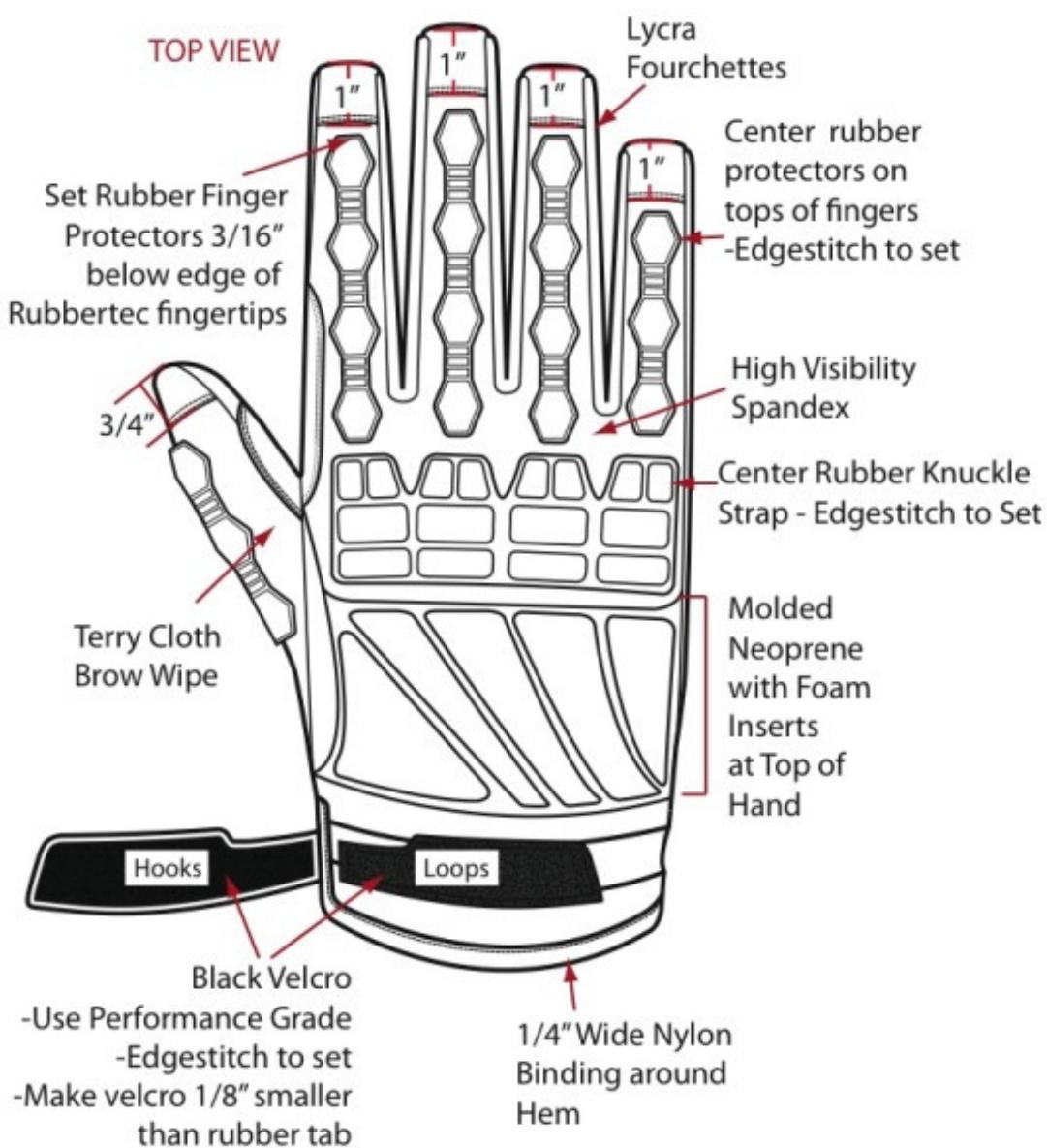
Salinas

WHAT IS A DESIGN SPEC?

Document that describes:

1. Features
2. Functions
3. Components of your design





DECISION SPECS ARE:



DEVICE REQUIREMENTS



PERFORMANCE CRITERIA



SAFETY



EVALUATION

REQUIREMENTS

DESIGN SPECS FOR DEVICE REQUIREMENTS



**DESCRIBES
MAJOR FEATURES
OF YOUR DEVICE**



PERFORMANCE

- WHAT IS THE DEVICE'S INTENDED USE
- CONSTRAINTS FROM SPG



OPERATION

- HOW THE DEVICE WILL BE USED
- TIME OF USE IF NEEDED
- ENVIRONMENT OF USE
- ETC

PERFORMANCE CRITERIA

DESIGN SPECS FOR DEVICE PERFORMANCE



DESCRIBES HOW MUCH OR HOW WELL DEVICE PERFORMS



PERFORMANCE CRITERIA INCLUDE:

- STRENGTH
- LOADS
- VOLTAGES
- CURRENTS
- SPEED
- ACCURACY
- RELIABILITY

SAFETY

DESIGN SPECS FOR DEVICE SAFETY



**SAFETY OUTLINES
ELEMENTS THAT
WILL REQUIRE
EXTRA CARE**



SAFETY INCLUDES:

- PHYSICAL HAZARDS
- FAULT HAZARDS
- ENVIRONMENTAL INTERFERENCE
- EXPECTED USE
- FORESEEN MISUSE

OFTEN USED FS RATING: 2

EVALUATION

DESIGN SPECS FOR DEVICE
EVALUATION



**IDENTIFY MEANS
FOR VERIFICATION
OF SPECS**



**IDENTIFY MEANS
FOR VALIDATION OF
SPECS**

**WHAT TESTS AND TESTING
RANGES WILL BE OF USE TO
PROVE YOU'VE MET YOUR
SPECS AND CLIENT NEEDS?**

Example of SPG for Neater Feeder Device

**Our client desires to take a
more active and independent
role in her eating**



Goal: To help Mary eat more independently

Main Features:

Guide right arm to mouth

Improve ability to hold a utensil

Provide stability

Allow Mary to sit at table with other people

Example of Design Specs for Neater Feeder Device



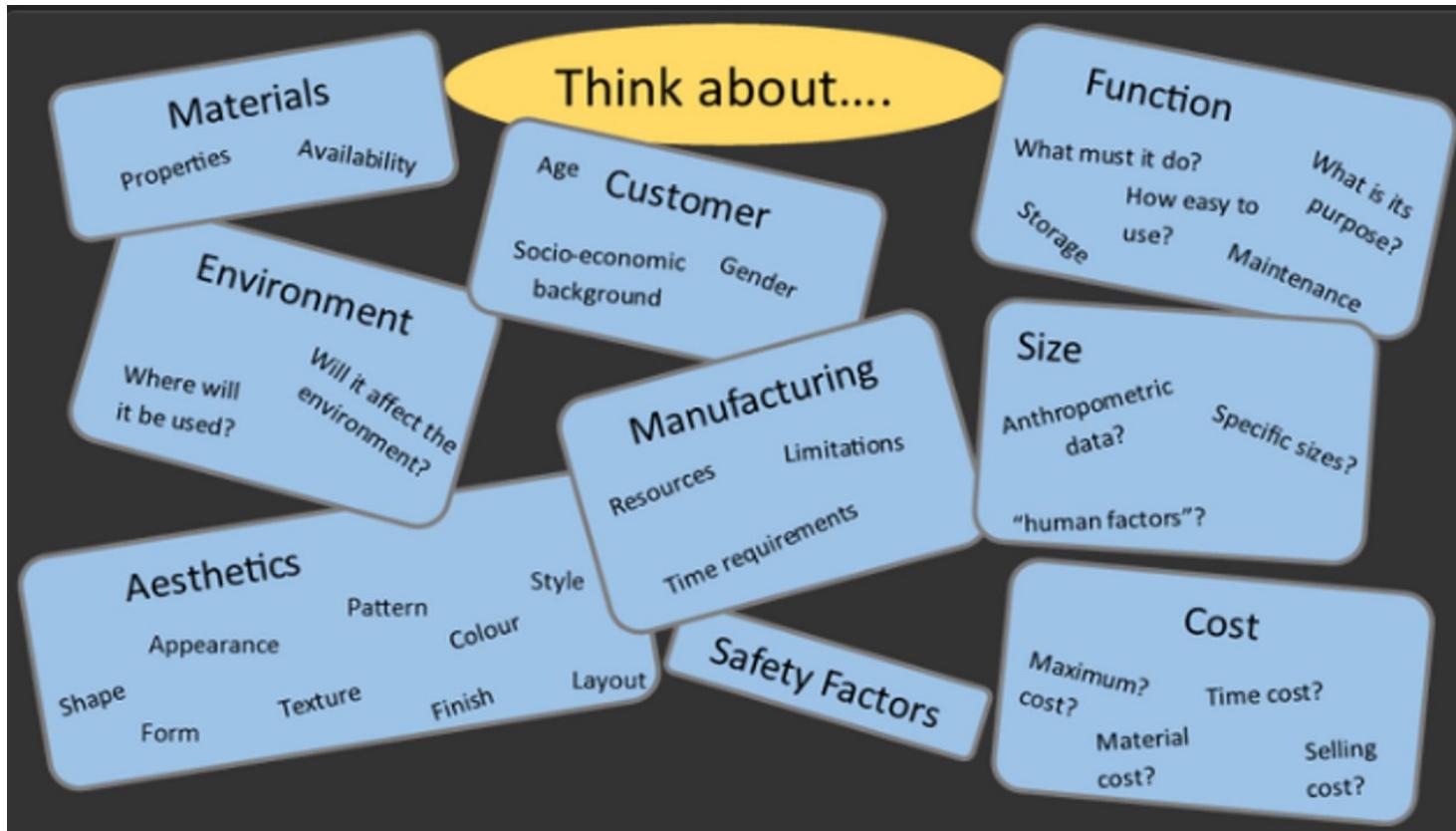
Example of Design Specs Table for Neater Feeder Group:

Requirement	Performance Criteria	Verification Plan	Validation Plan
Client must be able to use device for an entire meal	Device must be usable for a thirty-minute meal.		
Must be portable	Device must weigh less than 20 lbs. and must be 3.5 feet by 2 feet.		

YOUR GOAL:

1. Revisit Client Needs and SPG

2. Create Design Specs doc



Remember Specs are:

- Understandable by designers and customers
- Specifies the system behavior
- Describes what is done or required, but not how
- Complete, unambiguous and testable