1. Read the Rules
   1. Create a Scoring Matrix that tabulates:
      1. Autonomous Scoring
      2. Tele-operated Scoring
      3. End-game scoring /Bonus Points
   2. Understand the Ranking System
      1. How are Qualification Points earned?
      2. What are the Tie-breaker procedures?
   3. Understand the Constraints
      1. What are the limitations on defensive play?
      2. May you score for your opponents?
      3. Is de-scoring allowed?
2. Define your Design Basis
   1. Evaluate every possible way to score
      1. Assess the difficulty
      2. Assess the ability to defend against it
   2. Is there a “Chokehold”?
      1. Unstoppable
      2. Independent of opponents and ideally partners actions
      3. Guarantees a win
   3. Is there a single, finite task which overwhelms all other ways to score?
   4. Determine the Cost to Benefit and Risk to Reward relationships
      1. Usually a more difficult task will have a greater scoring potential ***and*** design requirements
      2. A defensive robot may be easier to design and deliver the same value to an alliance; however, defensive play is often inhibited or limited by the rules and errors may be significantly penalized.
   5. Define your strategy priorities
      1. Offense versus Defense
      2. Prioritize your scoring options
         1. High
         2. Medium
         3. Low (Nice to have)
      3. Remember that Simplicity can be Elegant
      4. Complex and fancy, while it may enhance the capability or image, may decrease reliability.
   6. List the Machine Features required to deliver the strategy.
      1. Drive
      2. Acquire
      3. Score
         1. Autonomous
         2. Tele-Operated
         3. End-game and/or Bonus
   7. Define the attributes required of each Feature to effectively perform its function
      1. Establish targets for the design
         1. Speed
         2. Torque
         3. Efficiency
         4. Cycle Time
         5. Capacity

# Scoring Matrix Example



# Feature / Attribute Matrix Example

|  |  |  |
| --- | --- | --- |
| **Feature** | **Priority** | **Attributes** |
| Drive | 5 | Speed, Torque, Agility, Maneuverability |
|
|
| Floor Acquisition | 5 | Fast, reliable, durable, reversible |
|
|
| High Goal | 5 | Accurate, Reliable, Quick Recovery |
|
|
| Autonomous | 5 | Multiple Ball,  Hot  reliable |
|
|
| Truss Lob | 1 | Accurate, Reliable, Catchable |
|
|
| Catch | 1 | Reliable, Wide Window |
|
|

|  |  |
| --- | --- |
| Priority | |
| 5 | High |
| 3 | Medium |
| 1 | Low |