VCE Systems Engineering

**Constraints and Considerations Matrix**

Choose the factors that apply to your project and determine whether they are a constraint or a consideration. In the application section give specific details relating to your proposed project. Rank factors in terms of importance; refer to your design brief.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **FACTOR** | **DESCRIPTION** | **✓** | **APPLICATION** | **IMPORTANCE**  **RANKING** |
| Time/ Timeframe | The time available to develop, construct, test and deliver the system. |  |  |  |
| Budget | Money available or limits to complete the system. Allowance for budget overrun? Cost vs Quality. |  |  |  |
| Size | This could be specific dimensions to fit a particular space. This could be a maximum or minimum size limit. |  |  |  |
| Shape | Could be dependent on purpose of system, such as aerodynamics, ergonomics or just visual appeal. |  |  |  |
| Function | How the system should perform or needs to perform. Performance targets? |  |  |  |
| Features | What control functions should it have? What special things should it do? |  |  |  |
| Safety | Are there regulations it must meet? What aspects need to be made safe on the system; sharp edges, exposed wiring, mechanical areas that could do damage? |  |  |  |
| Weight | Does the system have a weight requirement; weight for stability or light weight for performance? |  |  |  |
| Materials | What materials and the properties of the materials are needed. Strength, durability, light weight, workability, cost, availability? |  |  |  |
| Power source | How will the system be powered; mains power through an adapter, battery power, alternative energy or combination? |  |  |  |
| Maintenance | Will the system require access points for maintenance – batteries, lights, etc? How much maintenance will the system require, what may need replacing? |  |  |  |
| Durability | What force and motion types will the system be subject to? Does the durability relate to ridged or flexible strength? |  |  |  |
| Appearance | What is important; stylish and trendy, bright colours for safety/ visibility or dull colours to blend in with surroundings |  |  |  |
| Environment | Where will it be used; indoor/ outdoor, hot/ cold, wet/ dry, harsh handling – vibration, knocks, movement, damage. Will sunlight, wind, rain affect it? |  |  |  |
| Sustainability | Have you considered the materials used in regards to environmental concerns? Is the power source sustainable – rechargeable batteries, renewable power source? |  |  |  |
| Housing | What is the purpose of the housing – weather proofing, security, visual appeal? Does it need a housing? |  |  |  |
| Complexity | How complex is the system – subsystems, connections, programming, function, etc? |  |  |  |
| Accuracy | What level of performance accuracy does it need? High precision or near enough? |  |  |  |