System Design Checklist

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| **Reusability** | |
| Q1. What are the interfaces between the reused software and the operator? |  |
| Q2. What are the interfaces between the reused software and the plant system/environment? |  |
| Q3. How fast can the reused software process data and is that rate satisfactory for the new application? |  |
| Q4. What software routines or procedures must run prior to the execution of the reused software? |  |
| Q5. What hardware elements must be initialized prior to executing the reused software? |  |
| Q6. What schema does the project adopt to reuse software components in design phase? |  |
| Q7. Does the each component in the design have specific, clear and well defined operations in the each interface? |  |
| Q8. Is each component capable of handling repeated usage? |  |
| Analysis and Recommendation |  |

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| **Efficiency** | |
| Q1. Does the potential component have run-time characteristics that are acceptable within the context of the existing design? |  |
| Q2. Does the potential component have data management capabilities that are consistent with the existing design? |  |
| Q3. Have algorithmic design alternatives been considered? If yes, why was this design chosen? |  |
| Q4. Has an object-relationship model been defined? | Yes; class diagram explains this |
| Q5. Is each subsystem appropriately allocated to processors and tasks? |  |
| Q6. How much memory is allocated to each component? |  |
| Q7. How is data communicated between software components? |  |
| Q8. Can simpler data structures be used? |  |
| Analysis and Recommendations |  |

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| **Flexibility** | |
| Q1. Is the system capable of adapting to all types of problems or defects? |  |
| Q2. Is the system capable of allocating resources when under high stress? |  |
| Q3. Can the system retrieve information based on generalized queries/requests? | With each query there is a subclass, subtype to classify for |
| Q4. Can this system evolve? |  |
| Q5. Can we adjust for any changes in requirements, internal or external, made by the customer? |  |
| Q6. Can the system handle being introduced to new components? |  |
| Q7. Can the minimum and maximum information output be adjusted? |  |
| Q8. What types of risks is the system capable of handling? |  |
| Analysis and Recommendations |  |