Suggested Items in System Design (Capstone)

1. Purpose
2. Scope
3. Context diagram showing boundaries
4. Diagram showing components within system
5. Monitored and controlled variables (with units) – probably just a reference to System Requirements, but may want to add types for each variable
6. Constants – probably have to add to those described in the System Requirements
7. Behaviour overview – refer to System Requirements. Add any new notation. Add an overview for any new behaviour you are adding since this is now system design, not requirements
8. For each component:
    1 Inputs and outputs – sometimes these will be monitored or controlled variables
    2 Description of behaviour for the component. This is always a relation between outputs and inputs. For hardware peripherals, it is usually an M-I mapping or O-C mapping. For software it can be done as pseudo-monitored to pseudo-controlled variables. If the component is a computer, then rather describe the software behaviour that is to be implemented on that computer, and include the computer in the description of the hardware environment/platform for that software. Include a natural language description of "service" provided by that component.
    3 Derived timing constraints from System Requirements, Performance requirements
    4 Initialization
9. Normal operation
10. Undesired event handling
11. References

Make sure you name/number sections appropriately so that you can trace through to code, so that you can refer to them in V&V etc.

Make sure you refer back to requirements where appropriate.

The above is not a table of contents. It is simply a list of items you should consider including in the design document. It also does not mean you should not include other items that you think are necessary – especially diagrams and photos.