Block Diagram Lite Cheat Sheet
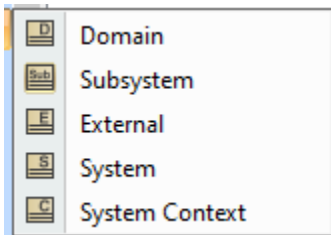
A SysML block diagram is really two diagram types. The **block diagram** provides a high level logical or physical view of all or part of a system. An **internal block diagram** can then be used to look at the interior parts of a block. Here we are interested only in the simple sketching functions of the block diagram. For more details about block and internal block diagrams see the Magic Draw documentation.

We are going to use the diagramming facilities of Magic Draw in two ways, to sketch a logical block diagram, and a physical block diagram*, using only a minimal subset of the diagrammatic features available. In addition to the simple block types we have the following relationships: association, generalization, aggregation and composition. (figure 2).

When creating diagrams for ASE 6001 you are welcome to use all the features of the SysML block diagram, but the ones shown here are all that you will really need.
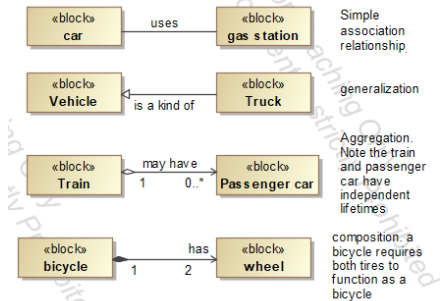

Figure 2 Major Relationship Stereotypes

Remember that when designing systems, once we have the requirements approved, we start with the needed functions to implement the requirements. There is no knowledge of the physical structure when creating a logical block diagram, so we stick with the basic blocks. Use of "subsystem", for example, would imply that we already know the physical structure of the system under consideration. The nice thing about using requirements diagrams, is that once we have the requirements defined, we can "allocate" them to logical functions and/or physical components (this is especially important with regulatory requirements). A sample logical architecture can be seen in figure 3. The resultant physical architecture can be seen in figure 4.
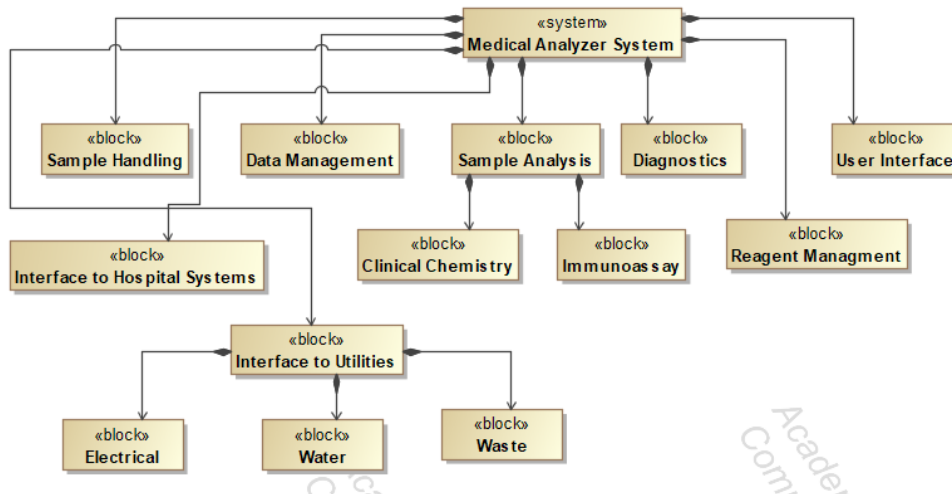

Figure 3 Medical Analyzer Logical Architecture

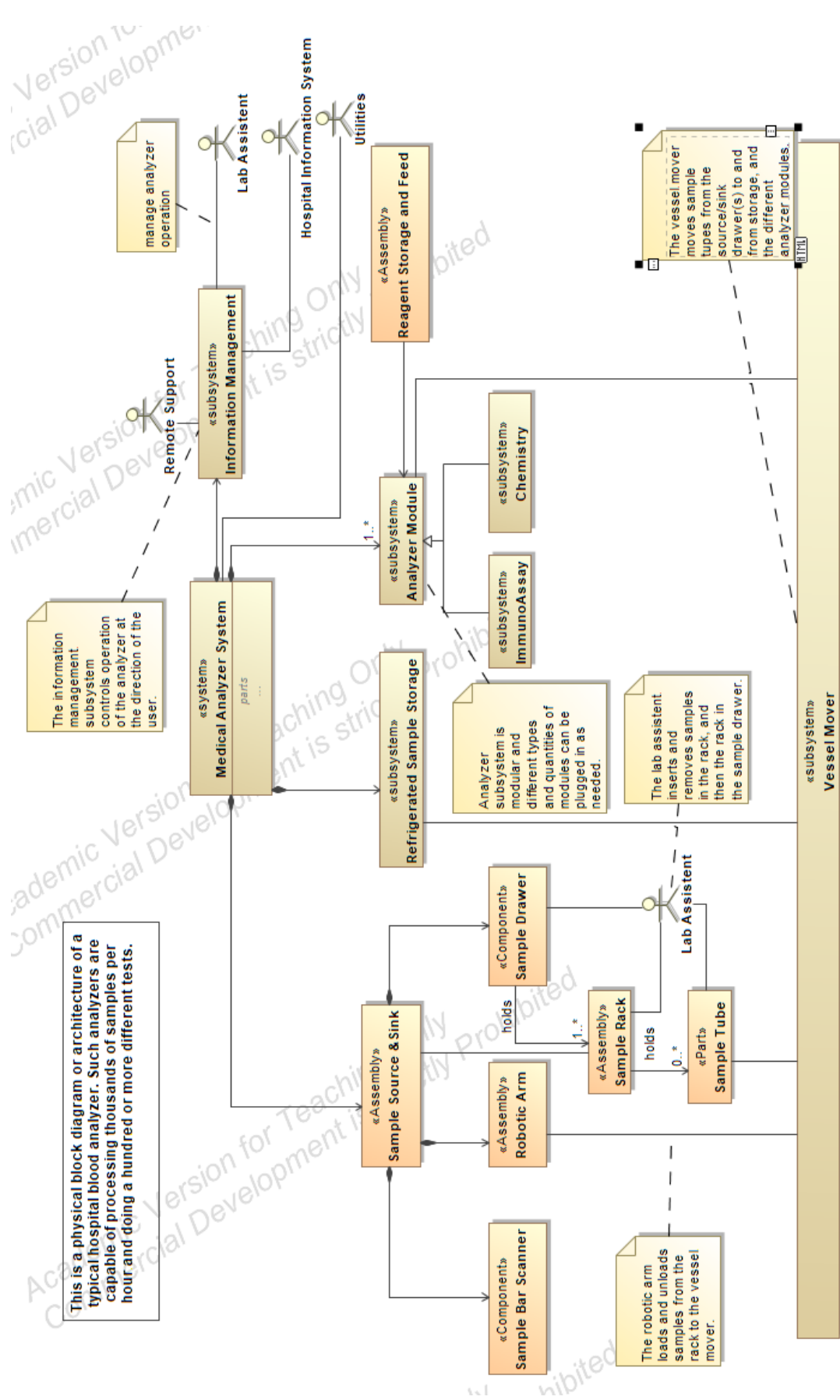*Here we are using "architecture" and "block diagram" interchangeably, to represent high level, single diagram views.

Figure 4 Physical Architecture of a Hospital Analyzer