

The final exam will be comprehensive and will effectively cover all the materials discussed in class. This study guide is intended to help focus your study time. There is no guarantee that this study guide is complete. You are responsible for Chapters 1 – 16 in the Frederick Brooks book *Mythical Man Month* (Anniversary Issue) and Chapters 1-3, 22-23, 12-15, 9-11, 16, 19 in the I. Sommerville book *Software Engineering*.

I suggest you focus on the following materials (there was a key given in class, if not its posted on our web pages for all exams, study questions, home works and quizzes sorry but not all keys are available on our web page):

Exams one and two keys

All the study questions and keys

All home work keys (last homework 5 was covered in class and there is no key [definitely do not exclude it]).

All quiz keys

*In regards to Chapters 16 and 19, here is an outline of the most important things (concepts, terminology and sections):*

Describe *hard* versus *soft* real-time systems and degraded operation.

Periodic and aperiodic stimuli.

What are three embedded systems characteristics?

How do state machines work.

Three major components of a real-time executive.

What are configuration and fault managers?

Give two examples of a monitoring and control system.

How would you characterize such a system (see Fig. 16.9)?

Characterize data acquisition systems and how they are usually organized.

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Describe fault tolerance versus fault (error) avoidance.

Describe exception handling.

Describe defensive programming (three principle things [what are they and how do they work]).

What are the principles of information hiding and encapsulation?

Why are information hiding and encapsulation used in programming for reliability?

What is an Ada package and how does it support the above principles?

How does structured programming help error avoidance?

How does data typing help error avoidance and give two examples of languages that support strong typing (i.e., the ones given in our text)?

What is a generic and in what language is this method used?

What does instantiating a generic accomplish in Ada and what are the analogs in C++ ?

Good luck and happy holidays.