

- 11.4      What is the common characteristic of all architectural styles that are geared to supporting software fault tolerance?
- 11.7      It has been suggested that the control software for a radiation therapy machine, used to treat patients with cancer, should be implemented using N-version programming. Comment on whether or not you think this is a good suggestion.
- 11.9      Explain why you should explicitly handle all exceptions in a system that is intended to have a high level of availability.
- 12.5      A train protection system automatically applies the brakes of a train if the speed limit for a segment of track is exceeded, or if the train enters a track segment that is currently signaled with a red light (i.e., the segment should not be entered). There are two critical-safety requirements for this train protection system:

The train shall not enter a segment of track that is signaled with a red light.

The train shall not exceed the specified speed limit for a section of track.

Assuming that the signal status and the speed limit for the track segment are transmitted to on-board software on the train before it enters the track segment, propose five possible functional system requirements for the onboard software that may be generated from the system safety requirements.