

## **Chapter 2: Licensing of Software Engineers and Safety Critical Systems**

### *Questions*

#### Generic Questions on Software Engineering Licensure and General Licensure (Slides 2–11, 16, 32)

1. What is your opinion with regard to the licensing of software engineers?
2. Do you think the licensing process might have a negative effect on the writing of software? If so, how?
3. Do you think licensing software engineers will enhance the quality of the software produced? Address this question in general and then from the perspective of safety critical systems.
4. In addition to the possible improvement of the quality of the software written, what are some of the other positive effects of software engineering licensure?
5. What do you think of the opinion that software engineering is not really a discipline unto itself but is really just a branch of computer science?
6. If the licensing of software engineers becomes the norm, do you think it should be state or federally regulated? Why?
7. What might licensing or certification of any profession provide for the profession?
8. What professions with which you are familiar have a licensing or certification for those active in the field?

#### Questions on the Existing Professional Exams for Engineers (Slides 11–12)

1. What is your overall impression of the existing professional exams for engineers?
2. What do you think of the stance that the test for professional engineers does not reflect the course of study of software engineers?
3. If you were to design an exam or exams for the licensing of different engineers, what subjects would you put on the test?
4. How would you design the test (e.g., separate exams for different fields, one general part, and then one discipline specific part)?

### Questions on the Stances of the ACM and the IEEE (Slides 13–15)

1. Compare and contrast the present opinions of the ACM and IEEE on the licensing of software engineers.
2. What were the reasons for the ACM changing its posture on the issue?

### Questions on the Therac-25 Case Study (Slides 17–28)

1. In your opinion, where was there a lack of ethics expired in the Therac-25 tragedy?
2. What action(s) might have been taken to avoid the deaths of some of the victims?
3. Why do you think further testing or safeguards were not implemented in this case?

### Questions on the Ariane 5 Case Study (Slides 17–22, 29–31)

1. In your opinion, where was there a lack of ethics exhibited in the Ariane 5 disaster?
2. What is the significance in this disaster since there were no human deaths?
3. What action(s) might have been taken to avoid this tragedy?
4. Why do you think further testing of safeguards was not implemented in this case?

### Analysis of the Two Case Studies (Slides 17–31)

Compare and contrast the two cases presented.

### Concluding Essay

Write a paragraph or two reflecting your views on the licensure of software engineers.

Support your opinions with examples.