

Course: Project Management and Research Methodologies

Assignment 1

Issued: Tuesday, 23/10/2017 Due: Thursday, 2/11/2017, 23:59

Objective

In the paper of Walter Tichy entitled “Should Computer Scientists Experiment More?” it is stated that:

“A good example of theory falsification in computer science is the famous Knight and Leveson experiment¹, which analyzed the failure probabilities of multiversion programs. Conventional theory predicted that the failure probability of a multiversion program was the product of the failure probabilities of the individual versions. However, John Knight and Nancy Leveson observed that real multiversion programs had significantly higher failure probabilities. In essence, the experiment falsified the basic assumption of the conventional theory, namely that faults in program versions are statistically independent.”

I would like you to write a two page statement on the “the Assumption of Independence in Multiversion Programming”.

This is an **individual assignment**, so each of you will work independently and prepare an essay.

I would like you, apart from the paper that has been uploaded in eClass, to identify 3-5 additional published papers on the topic. You should use these as references in the essay that you will produce.

The central question you are asked to answer is whether you believe the work presented follows the **Scientific Method, the Engineering Design Method or neither**. Support your answers with arguments.

This is an **individual assignment**, so each of you will work independently and prepare an independent review, but there is no requirement that you work on different papers.

Initial Material

- 1) J.C. Knight and N.G. Leveson, “An Experimental Evaluation of the Assumption of Independence in Multiversion Programming,” *IEEE Trans. Software Eng.*, Jan. 1986, pp. 96-109.

Note: This scientific papers have been uploaded in eClass

¹ J.C. Knight and N.G. Leveson, “An Experimental Evaluation of the Assumption of Independence in Multiversion Programming,” *IEEE Trans. Software Eng.*, Jan. 1986, pp. 96-109.

Formatting

You should be delivering a document in **pdf format**. Use time New Roman (font size 12pt) or Arial (11 pt). Page margins 2cm Left and Right and 2,5 Top and Bottom.

Delivery Date

The assignment should be uploaded in the relevant folder in eClass, on Thursday, November 2nd, no later than 23:59.