

# Science Fiction as a Valuable Tool in Engineering Instruction: To Boldly Go Where No Educator Has Gone Before!

A.E. Segall

Engineering Science and Mechanics  
The Pennsylvania State University  
University Park, PA 16802 USA

Long used for enhancing science and physics education, Science Fiction or Sci Fi has not been effectively integrated with engineering education. This is indeed unfortunate since a potent combination of theory and visual imagery has been shown to provide a critical nudge to help students to “get it”, especially in the early core courses such as statics and dynamics. A visual and fun connection between concept and application may also help avoid a “disconnect” between a student’s original (and sometimes erroneous) idea of engineering and the freshman and sophomore curriculum that plunges into math, physics and chemistry without a clear linkage to engineering and design. Moreover, a recent poll found that most people associate the technological gains of the last century with scientists and not engineers. Hence, the absence of Science Fiction in the engineering classroom represents a significant loss of both valuable resources and opportunities for enhancing engineering education, as well as attracting (and retaining) new students to the profession. With these basic goals in mind, a new class was developed that uses science and engineering as conveyed in films and literature to illustrate and teach basic core concepts that are fundamental to engineering. Central to the course delivery is “poking fun” at the disobedience of the laws of physics and engineering and teaching the correct behaviors through example and discussion. In this fashion, students can develop lasting mental images of the way things function and the complexities of design. The unique course also discusses the interactions and implications of technology and society, as well as the ethical considerations of engineering given human nature and the planet’s limited natural resources.

