Assignment 1: Is Engineering a Science?

In this paper, I will be discussing what it means that engineering encompasses both human and physical dimensions, as well as whether contemporary engineering can be considered a scientific discipline. I conclude that engineering nowadays must be considered a science, because of how the development of new instruments and such leads to new possible discoveries in science, thus engineering and science have become an inseparable entity.

Engineers must know natural science to modify nature effectively, and they must be familiar with humans and socio-economic science to properly ascertain what modifications are desirable, thus bringing nature and humanity together (Auyang, 2). This makes sense as engineering includes solving problems that concern natural and physical dimensions, such as effects on environment and climate, the fuel consumption and maintainability of a machine, or the knowledge of physics needed to accurately control a drone. All while considering human dimensions such as making the problem feasible as a team, the business that is connected to the development of a product, or listening to and speaking with stakeholders and customers to understand the desired product.

Is engineering a scientific discipline? If one were to argue against this they would surely believe in the linear model of innovation, which says that technology is applied science. That is, engineering only regards technology and makes use of the knowledge obtained from scientific research to create. (Slides w1).

This however is seen as an outdated model. It makes more sense to look at science and technology as having a bidirectional relationship. That is, technology and engineering gain from science, but in return also contributes to science through obtained knowledge during research and development, as well as contributions through new apparatus and instruments that lead to new knowledge. Developing new ways to gain knowledge especially can even be seen as an essential necessity for science, since this is what allows us to have new discoveries and developments to this day and forward.

It is this conductive-cumulative character that science has (Slides w1) that makes engineering undeniably part of it. Engineering seems almost as an inseparable part of science nowadays, because of science's dependency on new technologies. There may engineering work that is not scientific and does simply apply already discovered science. But because of the broadness it has gotten, you have to say that is also indeed a scientific discipline.

References

- Sunny Y. Auyang, Engineering – An endless frontier, Harvard University Press, 2004
- Slides week 1, URL: https://brightspace.au.dk//content/enforced/54153-LR8457/Engineering%20Week%201%20Science%20and%20engineering%20identities%202022.pdf?_&d2lSessionVal=gNmbFYKr421gQ5U3y4YgeWPut&ou=54153