

From Joseph Sussman <jsussman@abet.org>:

Dr. Wepfer, Dr. Rajala and I held a spirited discussion over the depth and breadth of the 8 sets of learning outcomes you've sent. It is clear that they represent a lot of work, and it is clear that there is likely a fair bit of "pride of authorship." Each program has articulated its own detailed vision of how their graduates should be prepared.

We were not exactly sure what we might do to assist these programs. However, as we got further into our conversation the following became clear. Since it is our understanding that the BEng Network Project is a common effort, why don't the participating institutions (and their programs) attempt to develop and share broadly defined learning outcomes?

Perhaps this was discussed by the BEng Project and rejected as too much regimentation. However, if properly prepared they could serve as a "scaffold" or underlying structural support for a variety of programs.

We decided that we would go ahead and use the 8 sets and create one "**super set**" developed with input from all 8. That's what you see here. The ideas are all yours, gently modified/lightly edited.

While not perfect, this is an interesting place to start a discussion on the nature of the BEng experience in Russia. We are happy to join a discussion and learn what you and your colleagues think.

Graduates of a modern Bachelor of Engineering program, regardless of academic discipline, will each have at the time of graduation:

- the ability to apply a basic knowledge of mathematics, natural and social sciences to understand the intellectual foundation and development of the discipline;
- an understanding of the importance of information in the development of a modern society and ability to use information and communication technologies in professional activities;
- the ability to work with a broad variety of information sources, and to filter and narrow an array of knowledge to meet specific needs;
- the ability to select, develop, and apply mathematical methods and models for solution of research problems, verify the adequacy of models, analysis and interpretation of results;
- the ability to carry out physical experiments with the application of given methodologies, describe these experimental studies and evaluate the results obtained;
- the ability to use modern experimental equipment and devices in their engineering practice;
- an understanding of the impact of engineering solutions on society and on the environment, including an understanding of health, safety, legal aspects and responsibilities involved in engineering activities, demonstration of personal responsibility and an understanding of the code of ethics and standards of engineering practice;
- the ability to combine theory, practice, methods and techniques to design engineering products, systems, and production processes and the technical documentation required for implementation;
- the ability to work effectively as an individual and as a member of a team; to understand the skills required to manage interdisciplinary project team dynamics
- the ability to communicate effectively in English at a competency level appropriate for multi-national teams working on complex engineering projects; and
- an understanding of the need for, and the ability to engage in, independent and professional lifelong learning.

Our view is that this is a rather dense and full set of outcomes, but still more manageable than the variety of outcomes offered by your BEng Project partners.