



2007-01-01

European and American Perspectives on Engineering Technology vs Engineering Degrees

Michael Dyrenfurth
Purdue University

Mike Murphy
Dublin Institute of Technology, mike.murphy@dit.ie

Robert Herrick
Purdue University

Manfred Hamann
University of Applied Sciences, Wolfenbuettel

Follow this and additional works at: <http://arrow.dit.ie/engineduccon>

 Part of the [Other Engineering Commons](#)

Recommended Citation

Dyrenfurth, M., Murphy, M., Herrick, R., Hamann, M.: European and American Perspectives on Engineering Technology vs Engineering Degrees. Presented at the American Society for Engineering Education Annual Conference, 2007.

This Conference Paper is brought to you for free and open access by the Engineering: Education and Innovation at ARROW@DIT. It has been accepted for inclusion in Conference papers by an authorized administrator of ARROW@DIT. For more information, please contact yvonne.desmond@dit.ie, arrow.admin@dit.ie, brian.widdis@dit.ie.



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 3.0 License](#)



**AC 2007-1467: EUROPEAN AND AMERICAN PERSPECTIVES ON
ENGINEERING TECHNOLOGY VS. ENGINEERING DEGREES**

Michael Dyrenfurth, Purdue University

Michael Murphy, Dublin Institute of Technology

Robert Herrick, Purdue University

Manfred Hamann, University of Applied Science Wolfenbuettel

Perceptions of the American Engineering Technology Degree with Respect to the European Engineering Degree

A Three Country Panel Session

How do European engineering colleagues view American Engineering Technology programs? How do American Engineering Technology leaders view European Engineering programs – particularly those with a focus on application? This session will consist of a panel with representation from dean, department head and faculty roles who will address issues and questions of comparability, equivalence, similarity and differences of such technology-focused programs.

In the USA the evolution of engineering and technology programs has resulted in a relatively clearly demarcated set of programs. Engineering programs are design and theory oriented while application oriented technology programs exist in both engineering technology and Industrial and other technology incarnations. Naturally, all programs depend on theory and all programs pay some attention to application/practice. What differs is the relative emphasis among the various programs. Many of the ingredients are similar but their proportions and the method of employing the ingredients varies considerably. In Europe, this engineering—technology distinction is not pursued anywhere to the extent of that it is in the USA. However, the same design & theory versus practice & application distinction does exist there – only it does so within the program name of engineering. Many universities deliver theory focused engineering programs in Europe while other types of institutions also offer engineering programs that are practice and application oriented. The degree name does not change but the outcomes developed by the degree are certainly different.

The purpose of this panel will be to involve representatives of both European and American institutions and have them address the distinctions among programs arrayed along the theory application continuum in engineering and technology. This is particularly germane given the backdrop of the European Bologna Agreement of 1999, European universities are reshaping their programs into Bachelor of Science (BS) plus Master of Science (MS) degree structure to provide a more consistent format across Europe which will allow more seamless international exchange activity. This new restructuring also allows the USA to participate more effectively in international education with Europe since it also has a BS plus MS degree structure.

Panel members will present a qualitative perspective of the relative strengths, weaknesses and key characteristics the American Engineering Technology Degree and the European Engineering Degree. What are the perceived similarities and differences between programs, curriculums, educational practices, and student cultures? How is applied engineering treated differently in Europe within the academic community compared to engineering technology in the USA? What are the accreditation or program validation approaches utilized by the USA and Europe. What are the perceptions of the industries that hire these graduates? What are the perceptions by the USA and Europe of each others programs? The roles of key associations, such as ASEE, ABET and SEFI will be addressed as well.

The panel will address a number of key characteristics and issues facing Engineering and Technology programs in their respective countries. Similarities and differences will be highlighted for each of these characteristics. Among the characteristics addressed are:

- The continuum of technologically capable people in each nation: Engineers, technologists, technicians, trades people, and their various titles and roles in each nation.
- The nature of employment and work responsibilities for engineers and technologists in each nation.
- Industry and employer expectations for new engineer and technologists in each economy.
- The configuration of university (tertiary) preparation programs for engineers and technologists in each nation.
- The outcomes capabilities developed by preparatory programs in each nation.
- Tertiary preparatory program enrollment trends in each nation.
- Recruitment of students to tertiary level engineering and technology programs.
- Key engineering and technology diversity enhancement activities in each nation.
- An overview of the most significant legislative and regulatory forces, e.g., the Bologna Agreement in Europe, affecting engineering and technology programs.
- Key issues faced by tertiary level engineering and technology programs in the USA, Ireland, and Germany.

Significant time will be allowed for audience interaction and questions. The key points raised by the panelists and audience members will be recorded and will serve as the basis for an article for the profession.