

**DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING**

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

***Engineering Regenerative Products – An
Industrial Engineering Perspective***

Richard A. Wysk

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Edward P. Fitts Department of Industrial and Systems Engineering
North Carolina State University**

ABSTRACT

This presentation presents an exciting new topic for industrial/manufacturing – the engineering of regenerative medical products. Regenerative medical products are manufactured cells, tissue and organs and their production brings some unique challenges and opportunities to industrial engineering. The presentation focuses on engineering in a highly regulated medical environment where products are highly customized (manufactured using the customer's DNA; processes are poorly defined; and the product is defined unlike any other consumer item. A brief overview and some very preliminary concepts that have been developed by domain experts at Wake Forest's Institute of Regenerative Medicine (WFIRM) and North Carolina State University's (NCSU's) College of Engineering is provided. The primary focus of the presentation is to show how the knowledge base developed at WFIRM to define process requirements for the creation of tissue and organs can be modeled as a non-traditional engineering system. The production system requirements will include: flow patterns, product requirements, process requirements (including FDA) and inventory and materials requirements.

The manufacturing system design for regenerative medical products must be scalable to produce lots of size one efficiently and with appropriate quality and traceability in a cost effective manner. This seminar will address some technological developments and concepts being used employed in this new area.

**TUESDAY, SEPTEMBER 25, 2012
ANDRUS GERONTOLOGY BLDG (GER) ROOM 309
3:30 – 5:00 PM**

SPEAKER BIO

Richard A. Wysk is the Dopaco Distinguished Professor in the Edward P. Fitts Department of Industrial and Systems Engineering at North Carolina State University. Prior to joining NC State University, Dr. Wysk held Chaired positions at Texas A&M University (Royce Wisenbaker Chair in Innovation) and The Pennsylvania State University (William Leonhard Chair in Engineering). He has written or contributed to more than a dozen books focused on product and process engineering. He is the author or co-author of more than 175 journal papers. He is the recipient of the IIE David Baker Outstanding Research Award and the IIE Albert Holzman Distinguished Educator Award. He is a Fellow of IIE and SME.