Statistical Engineering Division Seminar

Monday May 8, 1995 11:00 am

CAML Conference Room, Technology Bldg., Room B111
NIST
Gaithersburg, MD

Statistical Aspects of Agile Manufacturing

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Agile manufacturing is a concept and a vision for future manufacturing technology that is attracting considerable attention in industry. Operationally, it is defined as the ability to quickly realize high-quality, highly-customized, in-demand product at a cost commensurate with mass production. More broadly, it is defined as "the ability to thrive in a continuously changing, unpredictable environment." The means to achieve this end are quite varied and still evolving, but if statisticians are to help industry in this regard, they need to be aware of the meaning of agile manufacturing and the opportunities and needs for statistics that it provides. Process modeling is a primary opportunity because the ability to predict process performance, singly and in various combinations, is considered essential to agile manufacturing. Modeling perspectives from the materials processing and semiconductor fields will be described and modeling issues will be discussed. Statistical considerations arise in model fitting and validation, experimental design and analysis, and characterizing and controlling the statistical uncertainty of model-based predictions. Other statistical issues pertain to low-volume quality and reliability assurance and assessment. Success in agile manufacturing will require cross-disciplinary work, but statisticians will need to take the initiative to be included.

Dr. Easterling spent May-December, 1994 at NIST on an ASA/NSF/NIST Research Fellowship. From 1983 until March, 1995 he was manager of Sandia's Statistics and Human Factors Department. In April, he became manager of the New Initiatives Department in Sandia's Strategic Studies Center. He is a Fellow of the American Statistical Association and a former editor of the applied statistics journal, Technometrics.

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