

Introduction to Simulation-Based Decision Support Systems

A free seminar in South Australia

Presenter: Dr Allen Greenwood, *MSU, USA*

Venue: Lecture Theatre
SPRI Building
Mawson Lakes Boulevard
Mawson Lakes SA

Date: Thursday, 11th June 2009
4:00pm – 6:00pm

Abstract

Decision support systems (DSSs) are applications that support key aspects of a business and are important vehicles for having operations research models used in a broad context. They serve users by effectively integrating models, analysis, and data in a particular domain. Frequently DSSs involve the use of multiple, and often disparate, models that must work together. In these cases DSSs have to supply another key service – providing the mechanisms that permit models to collaborate. DSSs enrich and enlarge the decision space, standardize approaches to a situation, extend model life, and enable sophisticated models to be applied without the users having to fully understand and directly interact with the models. Of course, even though DSSs shield users from direct model interactions, the users must have enough understanding of the underlying models to employ them with confidence.

This seminar provides an introduction to the development and use of decision support systems to improve the design, production, and operation of complex systems across a variety of domains, including component part manufacturing, automotive assembly, shipbuilding, and naval logistics. All of the models and DSSs that are presented and discussed have been developed at Mississippi State University for such clients as General Electric Aviation, Naval Sea Systems Command, Nissan North America, Northrop Grumman Shipbuilding, and the Office of Naval Research. All of the projects have a discrete-event simulation model at its core, and in many cases, that model has to collaborate with at least one other type of model, such as continuous simulation or optimization. The seminar will also include a brief introduction to discrete-event simulation.

Presenter: Allen G. Greenwood, Ph.D., P.E., *Mississippi State University, USA*

Allen Greenwood is Professor of Industrial and Systems Engineering at Mississippi State University (MSU). He teaches courses and conducts research in simulation, project management, and enterprise systems engineering. His primary interest is applied OR, especially in the use of simulation modeling, analysis, and optimization – oftentimes implemented through decision-support systems – to improve the design and management of production and project systems.

He received the B.S.I.E. degree from North Carolina State University, M.S.I.E. from the University of Tennessee, and Ph.D. from Virginia Tech. Prior to joining MSU, he held positions at American Enka Company, General Dynamics Corporation, Virginia Tech, Northeastern University, and the American University of Armenia. His professional experience spans a wide variety of domains – engineering design and development (military aircraft and aerospace), manufacturing and production systems (military aircraft, shipbuilding, automotive, textile fibers, and electrical systems), project management, and healthcare. His research has been funded by such organizations as the AFRL (Air Force Research Laboratory), ONR (Office of Naval Research), NAVSEA (Naval Sea Systems Command), NASA, Northrop Grumman Ship Systems, Nissan North America, General Electric Aviation, and Center for Advanced Vehicular Systems (Mississippi State University). He has authored or co-authored nearly 100 creative works, including journal and conference papers, technical reports, software programs, etc. His research has appeared in such journals as *Decision Sciences*, *European Journal of Operations Research*, *IEEE Transactions on Reliability*, *IIE Transactions*, *Journal of the Operational Research Society*, and *Naval Research Logistics*.

Bookings for this free event are essential

Please RSVP by no later than 4 June, 2009:
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Format of the Seminar

4:00pm Presentation
5:00pm Refreshments and networking