

Jointly hosted by the EPSRC
funded ReRuN project and the
UK Chapter of the System
Dynamics Society

THE SPECTRUM OF SYSTEMS APPROACHES TO PROBLEM SOLVING: from Systems engineering to System dynamics to Systems thinking

22, Mar. 2019
1:00 PM to 5:15 PM
Cardiff Business School

For more information and registration
please email Ruini Qu (QuR4@cardiff.ac.uk)

Registration deadline: 4. Mar. 2019



Guest speakers:

Stephen Disney
Cardiff University

Discrete Control Theory

Using block diagrams, z-transforms and Tsympkin's relation I show how to obtain the variances of the orders and inventory levels maintained by the proportional order-up-to policy. Assuming demand is uncorrelated and normally distributed, a proportional feedback controller equal to the golden ratio minimizes a weighted sum of the variances. One may also minimize the inventory and capacity costs maintained by this replenishment policy.

Borja Ponte-Blanco
The Open University

Dynamics of Remanufacturing

Remanufacturing practices are gaining ground in the current pursuit towards circular economies. Together with meaningful economic and environmental opportunities, these systems introduce additional degrees of uncertainties over traditional manufacturing. This presentation explores the dynamic behaviour of such systems through the lens of Qioptiq, a Welsh remanufacturer of optical products.

Syaribah Brice
Cardiff University

Simulation approach in Healthcare

Depression is a common mental health problem which affects hundreds of millions of people. The treatment pathways for depression involve a complex network of health services. Our study employs a mixed simulation approach; Agent-Based Modelling for describing the disease progression and System Dynamics for the related treatment pathways.

Siôn Cave
Decision Analysis Service Ltd

System Dynamics in Nuclear Sector

Siôn will describes a number of instances where system dynamics has been applied to support strategic decision making in the nuclear sector, including workforce modelling and the management of radioactive waste. He will discuss how the stages of the system dynamics modelling approach were utilised to support robust policy analysis.

Rachel Freeman
University of Bristol

Systems Thinking in Local Manufacturing

Rachel Freeman will present findings from a study into local manufacturing and the resilience and sustainability of a city-region. A system dynamics model that represents the key stocks, flows, and feedbacks seen in Bristol's manufacturing history will be explained, along with its implications for the potential for re-distributed manufacturing (RDM) to contribute to the city-region.