#### **Course Overview**

This course aims to provide an in-depth understanding of the uses and benefits of modeling physical systems and dynamic simulation. During the course, we will cover how to build models, how to assess the reliability of the results, and how to fine-tune existing models. We will build models directly from the data (black-box models), from first-principles (whitebox models), or perhaps using a mixture of methods.

# **Course Highlights**

- (1) The uses and benefits of simulation, and how it can help shorten your development time.
- (2) An exposure of the various simulation tools available, and what they are best suited for.
- (3) An introduction to Simulink and associated modeling tools
- (4) Building dynamic models from experimental data, and then validating these models
- (5) Understanding the underlying principles of the simulation tool, and avoiding common modeling errors.
- (6) Making your models simulate faster
- (7) Monte-Carlo simulations

Throughout the course we will look at a wide variety of different models from many different disciplines such as electrical engineering, fisheries bio-economics, financial transactions, and chemical reactions to name but a few.

## Who Should Attend

Scientists & Engineers working with data wanting to
build models

Management Consultants

We particularly welcome you to bring along your own problems and data, and challenge the instructor to solve them. We recommend that delegates have some basic knowledge of MATLAB or that they familiarise themselves with using MATLAB before attending the course. Register today to secure your spot on the course.



#### Paper machine model



## **MATLAB & Simulink**

Simulink is a block-diagram modelling environment for simulating dynamic systems, evaluating performance, and refining control, DSP, and communications system designs. Simulink block diagrams provide a highly interactive environment for nonlinear simulation. You can run simulations from both pull-down menus or in batch mode from the command line. Results are displayed "live" during simulations using scope and graph blocks.

Where MATLAB offers a familiar programming environment, Simulink provide a graphical design environment for modelling and simulating complex control, DSP and supervisory logic systems. Built on MATLAB, these products can call any MATLAB function including user-written routines, allowing you to combine the best of both approaches. Even toolbox functions can be embedded within Simulink blockdiagram models.

#### For More Information, visit:

1) http://www.hrs.co.nz/matlab
 2) http://www.hrs.co.nz/simulink

#### On-site Training Option

We regularly train groups of people on-site in a wide variety of industries and locations spanning from government departments, financial institutions, engineering companies, and basic research groups. We make an effort to customise the courses to suit your problems and your interests.

### Register online at www.hrs.co.nz/simulationsimulinktraining