

# MANUFACTURING PROCESS MODELLING

## Introduction

Using cutting-edge computer software we can create virtual models of assembly processes. These virtual models show current workings and identify value-adding process improvements. In this way we help businesses to realise the untapped potential held within their assembly process, ensuring they implement the most cost-effective changes.

We use state-of-the-art software from many leading vendors, making us unique and versatile to companies' needs. Our software includes the Tecnomatix suite, (Plant Simulation, RobCAD, Jack, eM-Engineer, eM-Planner, Process Designer, Process Simulate, FactoryCAD and FactoryFLOW) Visio, Simul8, Sammie, Teamcenter Engineering, Delmia Automation, Unigraphics NX, SolidWorks, SolidEdge, AutoCAD and Adobe Acrobat 3D.

Our modelling facilities are based at the University of Loughborough, drawing upon the experience of dedicated modelling personnel and researchers in the Wolfson School of Mechanical and Manufacturing Engineering.



## Enterprise Modelling

With extensive experience in using static modelling tools we can evaluate current business processes and propose improvements to strategies, organisation structures and workflows.

## Production Simulation

By simulating assembly lines we are able to reduce investment costs and minimise the need to disrupt production. This 2D/3D visualisation and animation enables us to test and analyse potential changes and quickly show the results prior to implementation. By conducting parallel experiments we can compare different options in a virtual world and identify the best assembly improvements.

## CAD & Assembly

We are experienced in computer-aided product and machine design. We consider both design for manufacture and assembly, and sequencing steps for assembly and disassembly operations. Additionally, we can create exploded and section assembly views, 2D engineering draftings (to British Standards) and perform kinematic motion simulations.

## Ergonomics

We can assist companies assessing ergonomics in assembly by using biomechanically accurate digital humans in virtual environments. We can assign them tasks and analyse their performance. This can lead to safer, more efficient assembly processes, optimised manual workflows and reduced training costs.

## Plant & Layout Design

Using the latest digital techniques we create optimum plant and layout designs. This enables a scalable, flexible work cell and services layout. The data can be reused for future lines, to create a catalogue of mechanisms/machines and, more importantly, to track all modifications made on a line.

## Virtual Simulation

Our virtual simulation offers robot/work cell real time motion and logic simulation using programmable logic control. We can simulate and debug logic whilst linking to existing systems. This reduces plant implementation time and allows earlier detection of ramp-up errors in a virtual environment.

## Product Lifecycle Management (PLM)

Our PLM software knowledge enables companies to pull together information from diverse systems, allowing product, design, process and plant data from one area to be applied throughout the business. This provides a platform for sharing information and working together across the product-lifecycle and facilitating work with the broader supply chain.

## Training

We offer training for a wide range of modelling methods and various software platforms. Contact us to discuss your needs or to find out about our latest training opportunities.

**Tel:** +44 (0)1509 635 280

**Fax:** +44 (0)1509 635 281

**E-mail:** [ceca@lboro.ac.uk](mailto:ceca@lboro.ac.uk)

[www.ceca-uk.com](http://www.ceca-uk.com)



**CECA**

Centre of Excellence in  
Customised Assembly