

Virtual Engineering

Q What is Virtual Engineering?

Virtual Engineering transforms product development, enabling a fully-integrated virtual process that requires zero physical prototypes.

Virtual Engineering is the design and development of integrated computational systems and simulation tools and their application to product design, engineering, manufacturing and testing. Such systems provide comprehensive virtual environments that replicate physical process and enable advanced visualisation, analysis and interpretation.

VPAC's Expertise

VPAC works with engineering and manufacturing clients in developing integrated Virtual Engineering processes, tools, and infrastructure:

- CAD design and parametric geometry modelling,
- Simulation in areas of: structural analysis, computational fluid dynamics, non-linear analysis (such as crashworthiness and drop testing), kinematic and dynamics, fatigue and durability, discrete event modelling and acoustics,
- Topological optimisation to "grow" minimal structures to satisfy loading conditions and deliver weight and cost savings, and
- Design Space Evaluation and Design Optimisation using techniques such as design of experiments, response surface modelling, robust analysis and Design for Six Sigma (DFSS).

A Fully-Integrated Process

At the core of VPAC's Virtual Engineering capability is its expertise in enterprise level Multi-Disciplinary Optimisation (MDO). VPAC has comprehensive capability, software tools, services, and infrastructure for construction and execution of Multi-Disciplinary Optimisation.

VPAC's MDO capability is integrated with the company's High Performance Computing (HPC) capabilities and resources, including:

- jSub (a client-server job submission tool)
- Workflow Software Suite for composing, executing and monitoring MDO based workflows from single parameter studies to enterprise level, and
- MDO using a Service Oriented Architecture (SOA).

Contact

For further information on VPAC's Virtual Engineering capabilities, please email engineering@vpac.org.

To view VPAC's Engineering Case Studies please visit our website www.vpac.org

