

## Imperial College – a first with lasers in South Kensington

The Faculty of Engineering at Imperial College London has greatly extended the manufacturing facilities available to its undergraduates and researchers by investing in a laser profiler. The machine, a pre-owned 1.5kW LVD Helius, was supplied by Rugby based Manufacturing Service Solutions (MSS), specialists in laser cutting machinery and nitrogen generation plants.

“We have an internal market for our manufacturing processes which include CNC milling and turning, rapid prototyping, hard metal machining and fabrication,” said Graham Gosling, Design & Technical Manager of the Department of Mechanical Engineering. “For profiling sheet metalwork we only had a punch press. The improved accuracy and new capabilities of laser cutting will be a significant addition.”

The installation of the laser provides much greater scope for innovation and originality in the students’ and researchers’ work, enabling them to produce forms which would previously have been virtually impossible or too time consuming to achieve.

Designs are produced in Solid Works

and transferred as .dxf files to the Lantek CAD/CAM system which produces the profiling path for the laser. Graham adds: “MSS was very efficient and flexible, providing us with the resources to enable us to be self sufficient as quickly as possible.”

The LVD machine is already being used to manufacture the multiple wing spar templates for the Imperial College entry in the June 2009 Red Bull Flugtag where competitors aim to achieve man powered flight. Graham says, “The laser has enabled us to produce a continually changing wing profile, which this year should provide much better performance and lift. Not only will the laser enable us to produce more sophisticated and precise metal parts, but we anticipate that we will soon be cutting other materials such as Perspex and MDF once we have improved the extraction. ”

The machine will be invaluable in the Formula Student competition. This is run by the Institute of Mechanical Engineers and its aim is to produce a prototype single seat racing car whose design incorporates aesthetic, cost and performance factors. So far the laser has been used to produce a pedal box,



**Graham Gosling with wing template**

but it is anticipated that bodywork, fascia panels, and many other sheet metal components will also benefit from the new technology. Supported by outside sponsorship, the college is building two cars powered by BMW motorbike engines. Graham says, “The LVD is crucial to this project, as there is a considerable amount of precision metalwork involved.”

Graham concludes, “The technology is inspirational for students who are continually asking for time on the machine. It is probably the most significant piece of equipment purchased by the workshop over the last 20 years.”

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