

Loughborough University of Technology

Loughborough University of Technology has a long tradition of initial teacher education in the area of design and technology. Following the University's amalgamation with Loughborough College of Education in 1977, the Department of Design and Technology now provides three- and four-year degree courses together with a PGCE route for students with an appropriate design degree.

The student work illustrated here represents major projects taken from the Industrial Design and Technology with Education course. This four-year course is the major focus for design and technology ITE at Loughborough and recruits around fifty students each year. The course develops a capacity for designing, production and communication which is consistent with the needs of professional designers. An understanding of the educational values inherent in these activities is brought out through work in Professional Studies modules which relate the students' broad range of designing and manufacturing skills to the needs of National Curriculum Technology teachers.

These client-based projects present an opportunity for students to present their design ideas as working prototypes which integrate elements of engineering design and product design with appropriate technologies. This provides a sound platform of designing and technology skills from which Professional Studies and Education Studies modules develop the skills required of Technology teachers.

The Tetra Classic Cap was designed to allow the resealing of aseptic food cartons to make it feasible to package such foodstuffs as mayonnaise and sauces in Tetra Pack type containers. A central challenge for this brief was to produce a cap that could be integrated with the current production process with as few modifications as possible. The solution devised is attached to the packs during the production process. The original polythene seal is broken when opened by the consumer, and the carton can then be resealed via this plastic cap, thereby reducing the deterioration of the contents and preventing spillage.

To allow the design to be fully evaluated, Dave prototyped his solution as an injection moulding. This required the use of CNC machining to produce the mould tool:

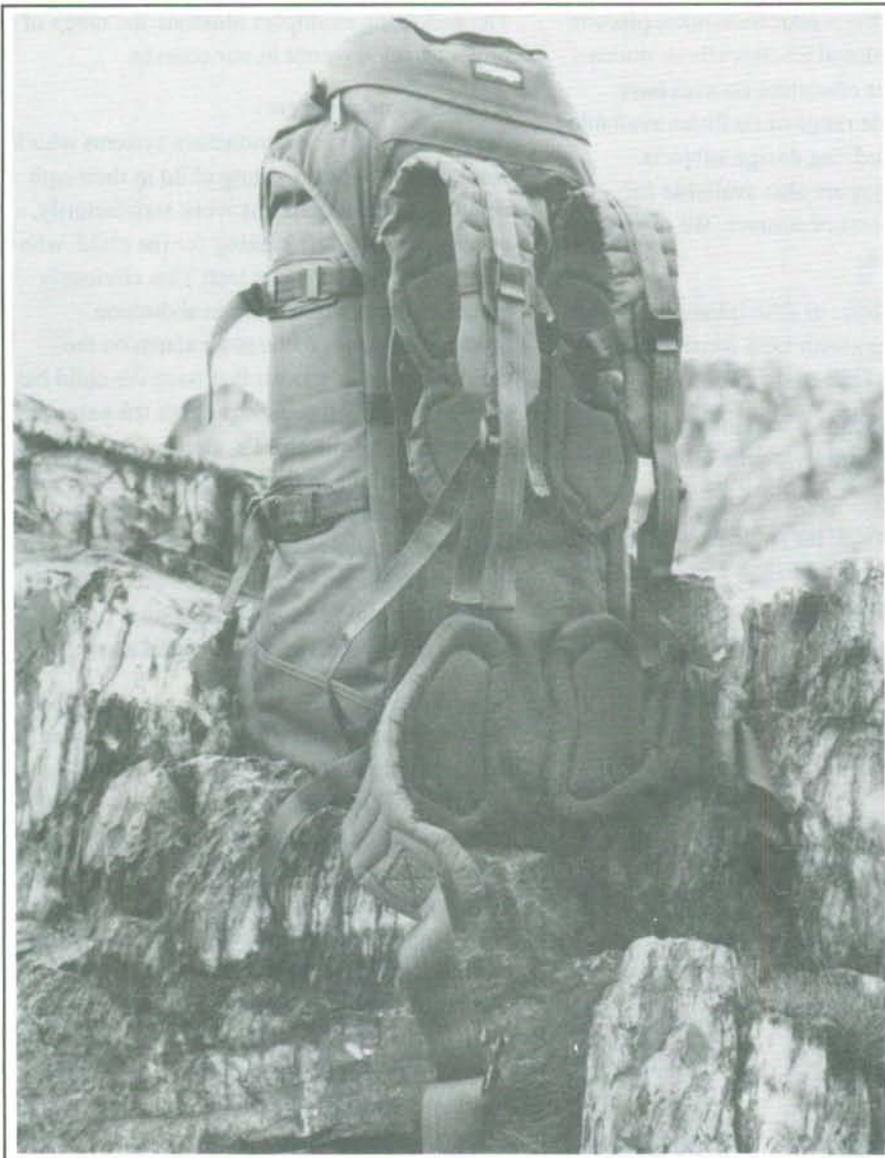
My course covered a variety of materials and CAD/CAM systems during the first two years. This was of great assistance in the design and manufacture of my third-year major project for Tetra Lavel Food when I needed to produce an accurate injection moulding tool using CNC equipment. I expect to be teaching CAD/CAM at my next teaching practice school.

Intended to be used in conjunction with two satellite speakers, the Sub-Woofer Amp provides a combination of amplifier and low bass speaker. The low-frequency response of the unit enables it to be positioned anywhere within a room to give the effect of surround sound. As a project combining visual and a technical element, Andrew chose to model his design as a fully working prototype. This required the integration of vacuum formings and plastic fabrications to give the appearance and structure of an injection moulding:

Working with a client like Cannon Audio meant that I was treated like a professional and was able to draw on all my skills as a designer to produce a working prototype for my presentation. I felt confident working in schools because of my strong background in graphics, design practice and information technology and the client experience will help me to provide an industrial insight for pupils.

The Tetra Classic Cap, designed by Dave Vellacott, a 3rd-year student of Industrial Design with Technology Education, to allow resealing of aseptic food cartons





Fraser Warren's Vertex back-pack system was developed in conjunction with Vango as a cost-effective means of accommodating differing back lengths, carrying relatively heavy loads, and allowing the circulation of air around the back.

Following extensive development and testing, the solution incorporates a rigid polymer and aluminium frame to which the shoulder straps, pack and belt are attached. Adjustments to the length of the frame are made using a simple locking mechanism. This allows changes to be made, not only for differing back lengths, but also for the easy shifting of pack position due to differing walking conditions. The wide experience Fraser had gained during his course paid dividends:

Vango, my client for the third year major project, were impressed with the range of materials I was able to work with. I found, on my last teaching practice, that this is consistent with the needs of pupil project work in schools.

Mark Evans and Tony Hodgson

The back-pack system designed by Fraser Warren, a 3rd-year student, Industrial Design and Technology with Education

The Sub-Woofer Amp designed by Andrew Buck, a 4th-year student, Industrial Design and Technology with Education

