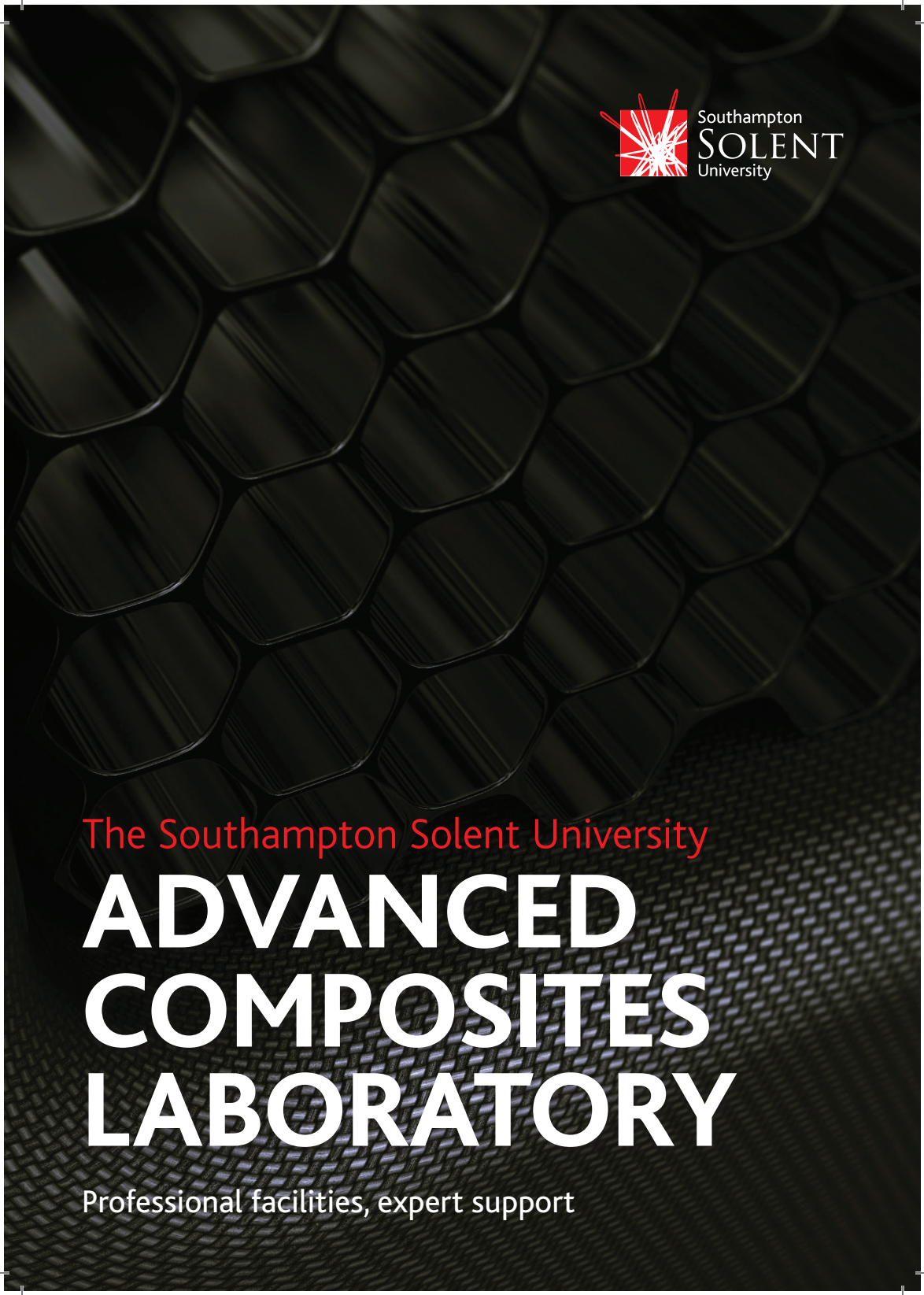
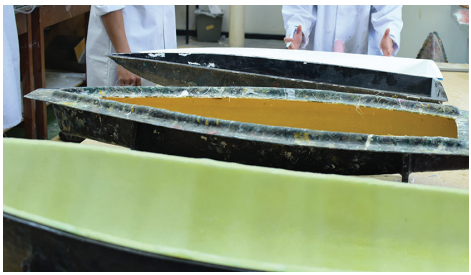


Southampton Solent University

The Southampton Solent University

ADVANCED COMPOSITES LABORATORY

Professional facilities, expert support



THE PERFECT BLEND OF
TECHNOLOGY AND EXPERTISE

Solent's advanced composites laboratory is backed by 40 years of experience

Combining industry expertise, practical hands-on training and the latest technology, we provide industry and educational establishments with specialist courses and services on the materials and processes of fibre-reinforced composites in the marine, automotive and construction industries.

Whether it's for an introductory taster session, for professionals wanting to develop their hands-on skills, or for senior management looking to advance their understanding of the various processes and uses of composites, we can deliver courses precisely tailored to your needs.

Equipped to handle polyester and epoxy resin in any combination of FRP materials, including glass, carbon and aramid fibre, the composites laboratory has a well-established reputation in the area of marine construction and repair. Organisations from a range of industries are beginning to explore the possibilities of using composite construction – and Southampton Solent University can provide the specialist facilities and knowledge you require.

Combining specialist expertise with flexible delivery tailored to your organisation's needs, we've worked with clients as diverse as civil engineers, local government, boat builders, automotive and mechanical engineers, construction businesses and local schools and colleges.

Flexible specialist support

Our expert team will work closely with you to establish your particular requirements and produce bespoke courses or training programmes to meet your ongoing objectives.

Industry-grade facilities

The Solent composites lab is designed to handle all of the processes commonly seen in composite construction, from hand- and vacuum-assisted laminating to pre-impregnated fibre construction and resin infusion.

We also undertake the construction of prototype models, towing tank models, display models and tooling, offering a turnkey solution to model evaluation and a cradle-to-grave approach to creating a prototype or product.

Past commissions have involved building towing tank models, test panels, surfboards, repair and improvement for sailing and rowing craft, parts for kit cars, and a range of other bespoke components.

The composites workshop features:

- Twelve workstations for specialised, advanced composite building methods
- Wet lay vacuum bagging for single project or short product run construction methods using male/female mould tools

WHY USE THE SOLENT COMPOSITES LAB?

- Specialist expertise
- Flexible delivery
- Bespoke courses
- Central south coast location
- Convenient access to supporting facilities
- CPD opportunity

- Resin infusion for in-mould production using female tooling
- Pre-impregnated fibre construction for female tooling requiring elevated temperature
- Repair methods for each of the above

The complete package

Complementing the facilities available in the advanced composites laboratory, our large, modern campus provides convenient on-site catering and meeting facilities. And on the technical side, as well as state-of-the-art IT and CAD facilities we have a range of other specialist equipment and workshops:

CNC five-axis router

We have a Thermwood 67 five-axis CNC router with a bed size of 10x5x2ft. This highly useful tool allows for the creation of almost any imaginable shape in a range of materials, and is commonly used to machine scale models of yacht hulls from styrene foam, for testing in our towing tank facility.

Rapid prototyping

The University's Stratasys FDM Titan 3D is a rapid prototyping system that uses fused deposition modelling technology to create ABS plastic prototypes of parts. The part specifications can be provided in a number of files, including IGES.

Heat treatment laboratory

This laboratory contains furnaces that can heat specimens and components up to 1100°C, so that small non-ferrous castings can be created and steels can be heat-treated. Materials that have been heat-treated can also be tested in our materials laboratory.

Materials testing laboratory

This laboratory houses three large tensile testing machines:

- a Lloyds 3000 machine, which tests up to 30 kN and features an extensometer
- a Tinius Olsen H150KU, which has a capacity of 150 kN and also offers 3- and 4-point bend testing
- a Dension with a capacity of 500 kN and an extensometer attachment.

Other equipment available includes:

- smaller portable tensile testing machines.
- non-destructive testing equipment.
- impact and hardness testing apparatus are also available.

Towing tank with wave generator and technical support

Solent's 60m towing tank is suitable for evaluating hydrodynamic lift and drag components for sailing and motor craft, and incorporates a wave motor. The towing tank has been used to test America's Cup racing yachts and other craft for industry leaders such as Quantum Dynamics Ltd, Seaspeed Marine Consulting and GKN Aerospace Services.

Specifications:

- 60m in length, 3.7m wide and 1.8m deep
- Carriage top speed of 4.0m/s
- Computer-controlled wave generator
- Can test scale models up to 2m in length and 50kg in weight
- Can test wave and tidal renewable energy devices
- Can be used for instrument calibration.

“As a marine apprenticeship training provider, we found Southampton Solent University’s composite and testing facilities highly beneficial. The expertise and assistance provided by the staff was extremely helpful and really enhanced the apprentices’ learning experience.”

Brian McKeown
Marine Operations Manager, Brockenhurst College

FIND OUT MORE

We’d be happy to discuss your needs and how we can help you achieve your goals.
We offer flexible, customised fees and services to meet your budget and requirements.

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