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Connect  
with our  
technical  
services.



Canterbury  
Christ Church  
University



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# Technical Services.



## How it works.

Offering innovative solutions requires efficient and effective research and development as well as technical knowledge and support. With extensive resources and equipment, latest technology and subject leading experts, Canterbury Christ Church University has a successful track record of working with industry to help organisations solve problems and achieve their business goals.

Projects can vary from several hours undertaking analysis on a component, to providing a comprehensive package of analytical and technical support based on a research brief.

The University has made it easier than ever for businesses to access our experts, with all work being undertaken with speed, accuracy, and a full guarantee of confidentiality.

To proceed, enquire via our website or speak with a member of the Enterprise and Engagement team. Following this we will organise a conversation with one of our academics or experienced technicians to understand your business challenge and how we can support you.

Contact us:

e: [b2b@canterbury.ac.uk](mailto:b2b@canterbury.ac.uk)

[Linkedin.com/company/cccu-connect](https://www.linkedin.com/company/cccu-connect)

[canterbury.ac.uk/business](https://www.canterbury.ac.uk/business)





# Our science & engineering facilities.

Take a look around Verena Holmes via our drone footage.



Our Verena Holmes building is a multi-million pound facility for Science, Technology, Health, Engineering and Medicine, opened in 2021. It is a hub for innovation, research and professional development offering a range of services that organisations can access.

With state of the art facilities and technology, access to specialist equipment and resources: businesses, budding entrepreneurs, and innovators can design, test, and bring ideas to market with the assistance of our highly qualified team.

Facilities include:

- Hi-tech makerspace featuring mechatronics and mechanical physics labs.
- High fidelity AR/VR suites.
- Large scale laboratories and instrumentation workshops.
- Science Spectrometry Laboratories.
- MRI Scanner and X-Ray facilities.
- Hydra Suite.
- Medical and Sport Science Simulation suites.
- Meeting rooms and conference facilities over four storeys.



# Engineering, Design, Growth and Enterprise (EDGE) Hub.



EGDE Hub provides technical expertise and cutting edge facilities for:



Life Sciences



Social Sciences



Health Sciences



Medicine



Technology



Engineering



Business and Management

## Engineering, Design, Growth and Enterprise (EDGE) Hub.

Developed in partnership with industry and supported by multi-million-pound capital investment, the Engineering, Design, Growth and Enterprise (EDGE) Hub is a University-wide strategic initiative, which addresses the current challenges faced by businesses and organisations in the South-East, acting as a catalyst for change and inwards investment, together with the stimulation of new skills and innovation for Industry 4.0 and 5.0.

Creating a sustainable and diverse regional talent pool with 30 to 40% of graduates

from under-represented groups, EDGE Hub will be worth an estimated £11.4m per year to the Kent and Medway economy through its distributed hubs. Headquartered at the flagship Verena Holmes STEM facility, it has distributed centres of excellence across Kent and Medway and holds the STEM Learning schools network contract, STEM Hub, for the South-East; is the nominated WISE Hub for the South-East; part of the international CDIO (Conceive, Design, Implement & Operate) community; and Primary Engineer's education partner for the South-East.



Contributes to the economies of Kent and Medway



Producing highly qualified engineering and technology graduates



# Our equipment.

A sample of our extensive equipment which can be used by our skilled technicians. Contact us to talk about your requirements.



- **SCANNING ELECTRON MICROSCOPY (SEM)**  
Used for the examination and analysis of micro- and nanoparticle imaging characterization of solid objects.
- **BENCH TOP NMR**  
An analytical tool which helps chemists and other scientists analyse a sample's molecular structure without destroying the sample.
- **AUGMENT REALITY EQUIPMENT**  
For real-time use of information in the form of text, graphics, audio and other virtual enhancements integrated with real-world objects.
- **VIRTUAL REALITY EQUIPMENT**  
For creating a computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings.
- **3D HANDHELD SCANNER**  
Contributing to the preservation of history, by collecting delicate objects and fossils in 3D digital form.
- **LASER MARKING SYSTEM**  
A permanent process that uses a beam of concentrated light to create a lasting mark on a surface.
- **SLM METAL PRINTER**  
A 3D printing technique, which utilises a high power-density laser to fully melt and fuse metallic powders to produce near net-shape parts with near full density.
- **3D PRINTING MACHINES**  
Print plastic, ceramic and cellulose materials.
- **WILSON VICKERS / ROCKWELL VH1150 HARDNESS TESTER**  
Evaluates material's properties, such as strength, ductility and wear resistance, and so helps you determine whether a material or material treatment is suitable for the purpose you require.
- **INSTRON TENSION AND COMPRESSION TESTING**  
Applies tensile force or compression to a material and measures the specimen's response to the stress.
- **FIBRE LASER CUTTING MACHINE**  
A metal cutting machine which offers unparalleled speed and accuracy.
- **INJECTION MOULDING MACHINE**  
In the process of injection moulding, a thermoplastic polymer is heated above its melting point. This melt is mechanically injected, or pressed, into a mould that mimics the ultimate shape of the product that will be produced.
- **ARMFIELD COMPUTER CONTROLLED SUBSONIC WIND TUNNEL**  
Able to support aerodynamic analysis of golf balls to fishing weights.
- **ICP-OES**  
An analytical technique that is used to identify the atomic composition of a sample.
- **GC MS**  
An instrumental technique, comprising a gas chromatograph (GC) coupled to a mass spectrometer (MS), by which complex mixtures of chemicals may be separated, identified and quantified.
- **LC MS**  
An analytical technique used for separation, identification, and quantification of both unknown and known compounds as well as to elucidate the structure and chemical properties of different molecules.
- **DISCRETE ANALYSER**  
An automated chemical analyser in which the instrument performs tests on samples that are kept in discrete cuvettes.
- **CONFOCAL MICROSCOPE**  
A technique that uses lasers and fluorescence to create a three-dimensional image of a sample.
- **FLOW CYTOMETER**  
Used to detect and analyse the chemical and physical characteristics of cells or particles.
- **fNIRS BRAIN SCANNING SYSTEM**  
A non-invasive brain imaging technique that measures blood oxygenation changes.
- **EYE TRACKER – EYE LINK 1000**  
Helps observe and measure eye movements, pupil dilation, point of gaze, and blinking to see where subjects of a study focus their visual attention.



# Engineering and Manufacturing.

**“The talent and resources at Canterbury Christ Church University are very impressive. It’s been an absolute pleasure to work with both the students and lecturing staff on innovations that will continue to transform our potential, as well as the University management for their approach to partnerships with industry.”**

MICHAEL WILSHAW |  
MANAGING DIRECTOR, EXROID

[canterbury.ac.uk](http://canterbury.ac.uk)



Our goal is to help the region’s engineering and manufacturing community access advanced technologies and research that will drive improvements in productivity, performance, and quality.

We offer bespoke solutions to business using our expertise and facilities, developing an understanding of requirements before providing innovative solutions. This aligns with our CDIO international engineering education model, where the framework centres on the importance of close collaboration between organisations, industry, and education providers in the context of Conceiving, Designing, Implementing and Operating (CDIO).

## Expertise

Our academics and technicians can provide a range of services from consultancy; analysis and technical support; to research and development into new products; processes and services across the following areas:

- Automation
- Digitalisation
- Product and process verification
- Additive and advance manufacturing
- Design and prototyping
- Dynamic modelling and analysis
- Cybersecurity and computer forensic
- Data Intelligence
- Material testing and training.



“The research collaboration with Canterbury Christ Church University will provide an ideal environment for sharing the know-how of the Egyptian and the UK partners in water desalination and advanced manufacturing. In addition, this research will advance the utilisation of additive manufacturing in the UK.”

DR MOHAMMED ALI | THE EGYPT DESALINATION RESEARCH CENTRE OF EXCELLENCE



We have state of the art facilities at our Canterbury campus including our engineering workshop, mechatronics lab, makerspace and mechanical physics lab. Within these spaces, our specialist equipment includes:

- Scanning Electron Microscopy (SEM)
- Bench top NMR
- AR/VR equipment
- 3D handheld scanner
- Laser marking system
- SLM metal printer
- Wilson / Vickers / Rockwell VH1150 hardness tester
- Instron tension and compression testing
- Fibre laser cutting machine
- Injection moulding machine
- Subsonic wind tunnel
- Subsonic Wind Tunnel
- Formlabs 3 Resin 3d printer
- Marked forge 3d Printer
- XYX 660 3-Axis machining centre
- 2D and 3D laser Cutting machines
- Wood and Plastic cutting machines



# Life Sciences.



Life Sciences encompasses a broad range of research themes, from biomolecular science to ecology and sport. The knowledge of our academics and researchers reflects the most recent advancements in industry, with several being involved with cutting edge research, consultancy, and knowledge transfer.

## Expertise

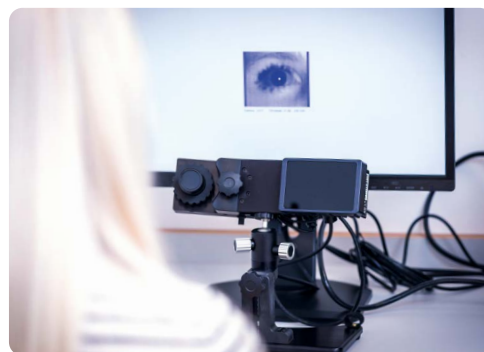
Our academics and technicians have expertise in:

- Biochemistry
- Biomolecular Research
- Ecology
- Industrial Biotechnology
- Soil science and environmental management
- Sustainable agriculture.



“Working together has presented significant benefits to our business. We have been fortunate to collaborate on some key projects which has resulted in valuable data that we are likely to use in the future to further our own product development, possibly leading to commercialisation of a novel assay. I’d encourage other companies to collaborate with Christ Church and academia in general.”

DOM BECKITT | GLOBAL PRODUCT MANAGER AND PRINCIPAL SCIENTIST, GENE BIOMEDX



We have state of the art facilities and equipment at our Canterbury campus including:

- ICP-OES: Inductively Coupled Plasma - Optical Emission Spectrometry
- GC MS: Gas Chromatography Mass Spectrometry
- LC MS: Liquid Chromatography Mass Spectrometry
- Discrete Analyser
- Confocal Microscope
- Flow Cytometer
- fNIRS Brain Scanning System
- Eye Tracker - Eye Link 1000
- Scanning Electron Microscopy (SEM)
- Bench Top NMR
- Growth rooms
- Glasshouses



# Plant and Food Science.



Plant and Food Science explore the composition of the food in our supply chains, understanding the various changes products will go through during storage and processing from field to fork. This allows us to analyse the physical and chemical changes of the food we eat, the nutrient loss and overall effect on human health including the positive and negative effects on disease.

## Expertise

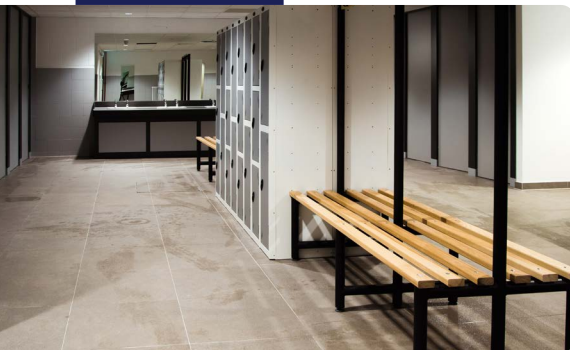
With global experience and specialties in food sciences, environmental management, soil sciences, ecotoxicology and industrial biotechnology, our academics and technicians can provide a wide range of services from analysis and nutrient testing, to technical support, research and report writing in the following areas:

- Micro and macronutrient analysis
- Trace element
- Heavy metals
- Toxicity levels
- Allergen
- Flavour profiles
- Pesticide residues
- Acrylamide
- Processing contaminants.



“I really enjoyed collaborating with Canterbury Christ Church University. The whole process was very straightforward, efficient and cost-effective. I would certainly use their industrial services again and would highly recommend them to other SMEs.”

DR XUE MIN | CSO, OXFORD MEDICAL PRODUCTS



## Equipment

- ICP-OES: Inductively Coupled Plasma - Optical Emission Spectrometry
- GC MS: Gas Chromatography Mass Spectrometry
- LC MS: Liquid Chromatography Mass Spectrometry
- FT-IR spectrometer
- UV-Vis spectrophotometer (single and multiwavelength scan)
- Microplate reader
- Benchtop NMR
- MQC benchtop NMR
- Discrete analyser
- Confocal microscope
- Fluorescent microscope.



The logo for SportsLab, featuring the word "SportsLab" in a white serif font on a dark blue rectangular background. A thin blue horizontal line is positioned above the letter "S".

SportsLab.



SportsLab is a sport science consultancy unit based on the Canterbury Christ Church University Canterbury campus.

It offers a range of professional services to aspiring athletes and local people keen to enhance their sports performance, health and fitness.

SportsLab also conducts performance-based research and provides support to businesses, helping them to enhance workforce performance and boost productivity through methods and practices underpinned by world-leading research. This has previously included sessions on coaching, nutrition, strength and conditioning, and sports psychology.





## Services available through SportsLab include:

### LABORATORY-BASED TESTING

- VO<sub>2</sub> Max - provides an indication of the maximum capacity of your body to transport and use oxygen whilst performing exercise.
- Lactate threshold - assesses accumulation of lactate in the blood to find an individual's threshold so training can be structured to improve performance.
- Haemoglobin and haematocrit - measures the body's ability to transport oxygen to the exercising muscle.
- Motion capture - the ability to digitally capture human or animal mechanical movement across a space.

### NUTRITION SUPPORT

- Body composition assessment
- 1-on-1 nutritional advice
- Nutritional strategy workshops
- Meal planning
- Hydration status.

### STRENGTH AND CONDITIONING

- Strength, power and speed assessments
- Functional movement screening
- Training plan design
- Flexibility assessments.

### SPORT AND EXERCISE PSYCHOLOGY SUPPORT

- Motivation management
- Enhance skill acquisition
- Control focus
- Enhance confidence
- Manage emotions.

### EQUIPMENT

- Altitude chamber
- Antigravity treadmill
- Blood analysis equipment
- BodPod body composition analyser
- Cardiac analysis equipment
- ECG, EEG and EMG analysers
- Force platforms
- Gas analysis equipment
- Isokinetic dynamometers
- Light gates and reaction timers
- Spirometry equipment
- 3D analysis equipment.



# Industrial Liaison Labs @ Discovery Park.



© Alex Hare



Established in 2016, the Discovery Park-based Life Sciences Industry Liaison Lab in Sandwich - provides companies with cutting edge scientific research, helping them to find solutions that lead to new treatments and ground-breaking discoveries.

Supported by academic staff and students, the lab can offer a personalised approach to specific research questions, providing a variety of options for collaboration with industry.



“As a start-up business with global-sized drams, investigating the research and development of our ideas for a natural solution to our climate emergency and global water crisis seemed like an extraordinarily tall mountain to climb. Canterbury Christ Church University’s academic team made our mission into something achievable, easy, understandable, and exciting. The team’s undeniable talent, expertise, compassion, and communication skills have created a fantastic relationship between Bare Native and the University.”

ABIGAIL GIBSON-WASS | FOUNDER AND CEO, BARE NATIVE



## Expertise

Our first-class facilities for science and research provide a range of scientific services and equipment:

- Quantitative genetics, genome sequencing, bioinformatics, and gene expression
- Bacterial and invertebrate model systems like yeast, *C. elegans*, and *E. coli*
- Cloning, DNA barcoding, genotyping, and mammalian.

Review of biological control agents’ effectiveness and potential risks for example:

- Disease simulations in vitro (development of cell-based models for Drug Discovery)
- Biomarkers (patient sample identification/use)
- Study of the proteome and transcriptome (preparation of samples through to data analysis)
- Microbiology analysis (microorganism preparation, sample evaluation, and species identification)
- Creating a proof-of-concept for an invention (supporting companies)
- Safety and Health (reviewing and committee leads)
- Creation of assays based on cells
- Imaging of cells (TEM, SEM, confocal and epifluorescence).



# A bit about us.

Ranked first in the UK\* for graduate employment, Canterbury Christ Church University is an international institution serving over 20,000 students, providing graduate skills to enhance the regional and national workforce and delivering research and innovation to support regional economic growth and address major challenges such as climate change and social and health inequalities.

With campuses and industry hubs embedded throughout the South-East, we provide a range of business services, whether that be commissioning research or accessing our specialist equipment to support organisations reach their potential and drive innovation across a wide range of disciplines and sectors.

\*HESA: Graduate Outcomes 2023

Contact our Enterprise and Engagement team to access our experts and arrange a conversation with one of our academics or experienced technicians to understand your business challenge and how we can support you.

## Contact us

e: [b2b@canterbury.ac.uk](mailto:b2b@canterbury.ac.uk)

[Linkedin.com/company/cccu-connect](https://www.linkedin.com/company/cccu-connect)

[canterbury.ac.uk/business](https://www.canterbury.ac.uk/business)

