

# SCHOOL OF ENGINEERING, DESIGN AND BUILT ENVIRONMENT (SoEDBE)

## COMMITMENT TO RESEARCH EXCELLENCE FOR A BRIGHTER FUTURE

**Partner with SoEDBE to unlock your potentials and push boundaries. Together we can turn ideas into reality.**

SoEDBE is actively seeking strategic collaborations with a wide array of partners, aiming to cultivate a collaborative ecosystem and provide innovative solutions to pivotal challenges. Backed by our extensive expertise and cutting-edge facilities, we offer a distinctive opportunity to engage in pioneering projects and forge impactful alliances.

By fostering a comprehensive understanding of the diverse needs of our partners, including educational institutes, government entities, local NGOs, and industries, and leveraging our robust research capabilities, we consistently support the successful fulfilment of partnership objectives in an efficient manner.

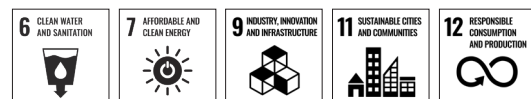
These collaborative partnerships encompass a wide range of dynamic activities, including research endeavours, capacity building initiatives, knowledge exchange and dissemination,

student and staff exchanges, global experiential opportunities for domestic students, as well as consultative services.

### Vision and mission

We aim to develop innovative and sustainable solutions for design, construction and maintenance of civil infrastructure using the latest technologies. An intelligent and well-maintained infrastructure network is the core to the growth and prosperity of Australia and in particular the Western Sydney Region, the fastest growing region in Australia. We are capable and fully committed to achieving this goal.

### SUSTAINABLE DEVELOPMENT GOALS



**UNI IN THE WORLD  
2022 & 2023**

TIMES HIGHER EDUCATION IMPACT RANKINGS



# RESEARCH THEMES, GROUPS

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## Sustainability and resilience

### Intelligent Infrastructure Engineering

This group contributes to the development of innovative, sustainable and resilience solutions for overarching design, construction and maintenance of civil infrastructure using the latest technologies.

### Urban Transformation

This group supports the ongoing sustainable and net zero urban transformation through systems, societal and technological approaches.

### Renewable energy and water

This group employs transdisciplinary approaches to develop impactful sustainable solutions in water, energy and waste management for communities, which will advance the UN SDGs.

## Design and digitisation

### Advanced technologies for human machine

This group aims to address the effective design of technology to human interface and bridge the gap between schools and research institutes working on similar topics.

### Digital systems and design

This group contributes to the delivery of digital disruption technologies and digital transformation in the built environment and construction industry by knowledge transfer and innovative research.

## Industrialisation and materials

### Future materials

This group contributes to the development of sustainable and resilient cities and community by developing responsible consumption and production, and advanced industry, innovation and infrastructure.

### Advanced manufacturing

This group contributes to industrial transformation and sustainable development of local manufacturing industry in our regions by developing and adopting new industrial technologies.



# AND CENTRES

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## Centre for Infrastructure Engineering

This centre develops innovative and sustainable solutions for overarching design, construction and maintenance of civil infrastructure using the latest technologies on Sustainable Materials, Resilient Structures, and Modern Technologies.

## Centre for Advanced Manufacturing Technology

This centre contributes to industrial transformation and sustainable development of local manufacturing industry via adopting advanced manufacturing technologies in GWS.

## Centre for Smart Modern Construction

This centre contributes to the development of a smart modern construction industry that is capable of dealing with challenges of the 21st Century using concepts and technologies brought forward by the 4th and 5th Industrial Revolutions.

### Contact:

✉ [EDBE-research@westernsydney.edu.au](mailto:EDBE-research@westernsydney.edu.au)

# State-of-the-art LAB FACILITIES



## **Geotechnical Engineering Laboratory**

This laboratory has the capability to perform soil mechanics tests widely required by industry.



## **Environmental Chamber and Composite Laboratory**

The laboratory is established for fabricating advanced composites, the scope and facilities include advanced composite laboratory and salt spray chamber.



## **Material Testing Laboratory**

The laboratory is equipped with the following machines for use in the research of materials: Instron 8036, 5985 and 6027 testing machines.



## **Structural Testing Laboratory**

This laboratory includes a multi-purpose structural testing facility, fire furnaces for material and structures and full scale 10,000 tons structure testing facilities.



## **Environmental Engineering Laboratory**

This laboratory is equipped for chemical and microbiological analysis equipment, including calorimeter, digital PCR (polymerase chain reaction), ion chromatography mass spectrometer, gas chromatograph.



## **Advanced Hydraulic Research Laboratory**

The laboratory focuses on use of image processing technology on data acquisition and processing in water, environmental and hydraulic engineering.



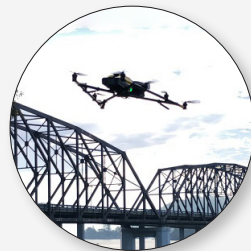
## **Design and Visualisation Laboratory**

The laboratory includes 3D printers, 3D laser Scanners, CNC machines, and Immersive Reality (Virtual Reality, Augmented Reality).



## **3D Printing Hub**

This Hub is designed for printing, engineering, learning, exploring, researching, and sharing using our state-of-the art high-tech equipment and facilities.



## **Infrastructure Health Monitoring Laboratory**

The laboratory includes several multi-purpose structural health monitoring testing, including drones and sensor technologies. The facility complies with ISO/IEC 17025:2005 for testing.



## **Advanced Manufacturing Precinct**

The precinct is innovation-focused and designed for designing, engineering, learning, exploring, researching, and sharing using our equipment and facilities with world-class technologies and opportunities.



## **Construction Informatics Laboratory**

The laboratory provides cutting-edge digital technologies including Internet of Things (IoT), blockchain, construction automation platforms, digital visualization, 3D Scanning, Matterport, and BIM.



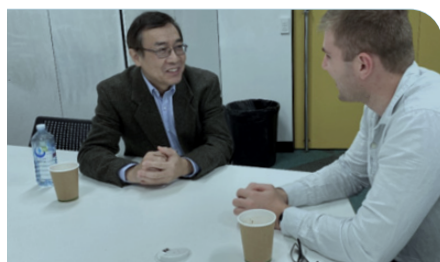
# HDR COMMUNITY

**The SoEDBE HDR (Higher Degree through Research; PhD, MPhil, and MRes) community is currently experiencing a rapid growth phase, with over 210 students.**

Furthermore, the community becomes more international, multicultural, and multidisciplinary. Guided by exceptional academic supervisors, our HDR students actively contribute to world-leading research that aligns with WSU's No. 1 global ranking in driving impact through the United Nations'

Sustainable Development Goals (SDGs). To motivate and support students in conducting high-quality research while also prioritising their well-being, we host various workshops and events, hold monthly research seminars, recognize students for research excellence, and build a digital showcase platform. Our HDR students are prepared to become future leaders and ambassadors of WSU's values to the global community.

## RESEARCH TRAINING



Speed Mentoring

## WELL-BEING



Mindfulness Program

## RESEARCH PROMOTION



Seminars & Awards



Scientific Writing Workshops



Social & Cultural Events



Showcase Events



Research Week Training Workshops



Wellness Activities



Presentation Competition