The School of Computing, Engineering and Mathematics (SCEM) integrates the core disciplines that drive research and development in technology, technological creativity and innovative entrepreneurship. This is reflected in the School’s research profile, which incorporates a range of leading research concentrations and strengths in these disciplines. The expertise and scholarship in SCEM markedly position the School in terms of inter- and cross-discipline interaction. Consequently, the School is closely engaged with the four UWS institutes and the University group in Digital Humanities, which resides in the School of Humanities and Communication Arts. The School also offers extensive international research collaboration opportunities through its numerous international engagements and visitors programs.
CENTRE FOR RESEARCH IN MATHEMATICS
Conducts research in a broad spectrum of mathematical areas, including algebra, control theory, mathematical biology and computational data science. Leader: Dr Roozbeh Hazrat

ARTIFICIAL INTELLIGENCE RESEARCH GROUP
Conducts research in computational intelligence, knowledge representation and reasoning, automated negotiation, intelligent agents, data mining, logic based computer security and image processing. Leader: Professor Yan Zhang

SOLAR ENERGY TECHNOLOGIES
Conducts research in environmentally clean technologies for fuel (solar-hydrogen) production, solar water purification, and solar-powered houses and cars. Leader: Professor Janusz Nowotny.

ADVANCED MATERIALS AND SMART STRUCTURES
Conducts research in advanced materials and smart structures in mechanical and civil engineering. Leader: Professor Yang Xiang

GEOTECHNICAL, WATER AND ENVIRONMENTAL ENGINEERING
Conducts computational modelling and experimental research projects in sustainable geotechnical, water and environmental engineering. Leader: Associate Professor Chin Leo

HEALTH INFORMATICS AND TELEHEALTH RESEARCH AND INNOVATION LAB (THRIL)
Conducts research in intelligent and innovative ICT methods supporting new models of health care in areas such as aged care, independent living, chronic disease management, and wellness promotion. Leader: Professor Anthony Maeder

SUSTAINABLE CONSTRUCTION MANAGEMENT AND EDUCATION
Conducts research in sustainable construction education and strategies in construction industry for responding to climate change. Leader: Associate Professor Vivian Tam

COMPUTATIONAL ASTROPHYSICS, IMAGING & SIMULATION
Conducts fundamental and generic astrophysical observational research on the life of stars at all frequencies (Radio, Optical, IR, X-Ray) using available national and international instruments. Leader: Associate Professor Miroslav Filipovic

SOCIAL COMPUTING AND KNOWLEDGE ECOSYSTEMS
Conducts research projects in the area of social life networks, knowledge management and business process modelling for designing optimal technology support. (Leader: Professor Athula Ginige

NETWORKING, SECURITY AND CLOUD COMPUTING
Conducts research in security, reliability, performance, and quality of service of large-scale networked systems. Leader: Dr. Seyed Shahrestani

DIGITAL HUMANITIES (TECHNOLOGY)
Conducts research and development of technologies for digital humanities, based on artificial intelligence, data visualisation and immersive virtual reality. Leader: Professor Simeon Simoff

ROBOTICS, VISION AND SIGNAL PROCESSING
Conducts research and development in industrial robotics, computer vision and signal processing. Leader: Dr. Gu Fang

INTELLIGENT AND SUSTAINABLE ELECTRICAL SYSTEMS
Conducts research in sustainable and intelligent electrical systems such as high performance drive systems, power electronics and power systems, power quality and renewable energy systems. Leader: Associate Professor Mahmood Nagrial

Higher Degree Research
Higher Degree Research (HDR) at Master and PhD level enables a student to conduct an in-depth investigation to advance their understanding and knowledge on a research topic. Master (Honours) and PhD are research only programs. Students conduct research under the supervision of a principal supervisor, assisted by a supervisory committee. Students submit a thesis for examination at the completion of their research. Students with research outputs exceeding that normally expected from the Masters program can transfer to a PhD program based on a revised research program.

www.uws.edu.au/scem/school_of_computing_engineering_and_mathematics/higher_degree_research

SCEM is home to one of Australia's best laboratories for independent testing and monitoring for the construction and manufacturing industries. Its expertise is especially relevant to civil, structural, and signal processing engineering businesses and regulatory bodies.

Robot in a robotic assembly laboratory, the School has a range of capabilities for mechatronics, industrial design and small-scale production, with an emphasis on sustainable design.

3D models produced by 3D printers using 3D computer-aided design model data to produce an accurate physical prototype – a 3D ‘print’ – is a fast and cost effective way to produce physical models and functional or semi-functional prototypes. For more information visit the SCEM website.

Australian Postgraduate Awards (APA)
www.uws.edu.au/research/scholarships/australian_postgraduate_awards_ap

International Postgraduate Research Scholarships (IPRS)
www.uws.edu.au/research/scholarships/international_postgraduate_research_scholarships_iprs

Who to contact for PhD or Masters (Hons) advice:
Professor Wei Xing Zheng, Director Research HDR

Application Form
https://applyonline.uws.edu.au/connect/webconnect

Research at UWS
www.uws.edu.au/research

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