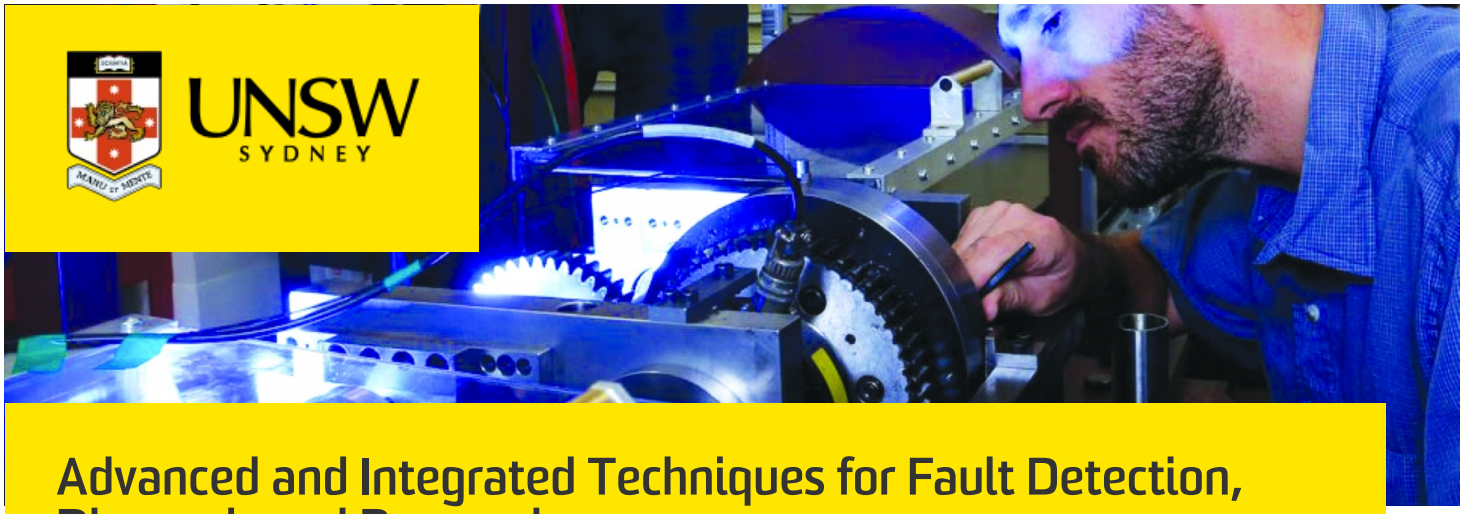

Advanced and Integrated Techniques for Fault Detection, Diagnosis and Prognosis

Providing maximum control over fibre trajectories and part geometry; this facility includes a head for laying parallel thermoset prepreg composite tows as well as a specialist thermoplastic composite head for in-situ melding for one-shot part fabrication of bespoke high-performance composites.

Competitive advantage

- Integrating wear and vibration analyses for machine condition monitoring and remaining life time prediction
- Estimation of gear surface roughness and remaining life using vibration, acoustic emissions and wear analysis techniques
- Expertise in vibration and wear debris analyses

Impact

- Increased safety for personnel by early detecting and predicting bearing, gearbox and engine failure
- Reduced through-life support costs through more efficient maintenance planning and practices

Successful applications

- Helicopter gearbox diagnostics, Defence Science and Technology (DST)
- Fault diagnosis and prediction of planetary gears and bearings, DST
- Model-based IC Engine diagnostics and prognostics, Siemens
- Monitoring of pump wear, Weir Minerals

More Information

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Capabilities and facilities

- Two gearbox test rigs (one planetary, one parallel) and one bearing rig, all with variable speed and load capability, for diagnosis of spalls & cracks etc., and prognostics
- Extensive vibration instrumentation (including for acoustic emissions) and advanced signal processing packages developed in-house
- Tribometer, rolling-sliding and friction rigs for wear testing; wear particle analysis facilities (filtergram and ferrography)

Our partners

- Defence Science and Technology (DST)
- Siemens
- Weir Minerals

- Safran