

Potential Research Projects

CHEMICAL ENGINEERING

Project Title

- Bioinspired materials for biomedical and environmental/maritime applications
- Nanomaterials-based bio/chemical sensors

Supervisor(s)

[Dr Yen Nee Tan](#)

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- Food waste processing to functional materials

[Dr Kent Chin](#)
[Dr Yen Nee Tan](#)

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- Analysis of system of systems – neural networks based coordinated control systems
 - Design of sustainable industrial cities – integrating 'waste to resource' with the chemical process industry

[Dr Pavan Kumar](#)

Potential Research Projects

ELECTRICAL POWER ENGINEERING

Project Title

- Siting and Sizing of Battery Energy Storage Systems
- Smart Electric Charging Strategy for Urban Distribution Systems
- Uncertainty management in Urban Distribution Systems
- Data analytics for Fault Detection, Isolation and Restoration
- A Multi-Agent System Approach to Ensure a Resilient Cyber-Physical System

Supervisor(s)

[Dr Anurag Sharma](#)

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- Compensation of time delay in smart grid system
 - Force Reflecting Control for Bilateral Teleoperation System Under Time-Varying Delay
 - Developing a Wearable Rehabilitation Robotic Device
 - Underwater autonomous vehicles

[Dr Khalid Abidi](#)

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- Solid state transformers for smart microgrid systems
 - Advanced Power Electronics for Resilient Active Distribution Networks
 - PE technologies for applying Energy Storage in Resilience Applications
 - Fault tolerant DC-DC converters for mission-critical applications
 - Advanced PE solutions for the future grid applications

[Dr Naayagi Ramasamy](#)

Potential Research Projects

ELECTRICAL POWER ENGINEERING

Project Title

- Single-stage DC-AC power conversion for renewable energy system
- Multilevel inverters with improved reliability and fault-tolerant operation
- Model predictive control for power converter system
- Multi-terminal HVDC power transmission system using MMC

Supervisor(s)

[Dr Sze Sing Lee](#)

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- Hybridization of Physical and Virtual Energy Storage System
 - Microgrid/Nanogrid for Future Energy Solution
 - Microgrid Inter-operability for Resilient Power Network
 - Investigation on Cyber-Physical Security Vulnerabilities in Microgrids

[Dr Jianfang Xiao](#)

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- IoT based mobile hearing monitoring system solution
 - Low power environmental monitoring systems
 - Artificial Intelligent (AI) hardware development: accelerators, AI power measurement systems
 - Acoustic energy harvesting

[Dr Noori Kim](#)

Potential Research Projects

MECHANICAL ENGINEERING

Project Title

Supervisor(s)

Advanced Manufacturing:

- Molecular modelling of the mechanics of machining
- Micromachining

[Dr Zi Jie Choong](#)

Smart systems:

- Intelligent monitoring of structures in bridges
- Smart prosthesis for rehabilitation

[Dr Junjie \(JJ\) Chong](#)

Thermal storage systems:

- Phase change materials and systems: computer simulation, experiments
- Prototype development

[Dr Steven Tay](#)

Design and prototyping of service robotic:

- Waiter robot
- Toilet cleaning robot

[Dr Michael Lau](#)

Potential Research Projects

MECHANICAL ENGINEERING

Project Title

- Additive manufacturing
- Microwave heating of materials
- Lightweight metal alloys and composites
- Computational materials

Supervisor(s)

[Dr Eugene Wong](#)

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- Mechanics of 3D composite printing: towards a smart composite materials
 - Understanding mechanics of repair of composite materials and structures
 - Novel composite materials from macro- to nanoscale: Interface characterization, modelling/simulation studies in fibre and particle composites
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[Dr Kheng Lim Goh](#)

Potential Research Projects

MARINE TECHNOLOGY

Project Title

Supervisor(s)

- Ship and Offshore Hydrodynamics
- Renewable Energy
- Decarbonization and Alternate Fuel
- Energy Efficiency and Management
- Green Ship Technology
- Shipyard Technology Management and Practice
- Sustainability Development Goals in Maritime and Offshore

[Dr Arun Dev](#)

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- Intelligent Systems Design
 - Data Mining
 - Predictive Modelling
 - Machine Learning
 - Energy Storage System (Battery)
 - PV system
 - Acoustics

[Dr Cheng Siong Chin](#)

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- Engineering design
 - Efficiency Improvement
 - LNG Transportation & Storage
 - Modeling and Simulation
 - ORC and Trigenation Cycles
 - Combustion and Emissions Control.
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[Dr Ivan CK Tam](#)

Potential Research Projects

- Floating terminal with different engineering applications
- Floating solar panel farm
- Floating hotel or housing
- Floating bridges in various scales
- Wave energy devices
- Wind turbine under various floaters
- Autonomous ships.

[Dr Ling Wan](#)

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- Design Optimization (i.e. drag/shear force reduction) using CFD
 - Data Analytics and Artificial Intelligence in Fluid Dynamics
 - Sustainable Energy Engineering.

[Dr Mohammed Abdul Hannan](#)

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- Computational fluid dynamics applications in marine and offshore engineering:
green water
 - Ship energy-saving devices and techniques,
 - Added ship resistance in waves
 - Ship resistance in ice field
 - Ship energy efficiency and performance monitoring.

[Dr Xin Wang](#)
