Research Areas in Chemical Engineering

Bioprocess Engineering
- Anaerobic Digester for Biogas Production from FOMC and Palm waste
- Fungal and Bacterial Consortium for Composting of EFV from Oil palm
- Enzyme Technology
- Biorefinery for Wastewater Treatment
- Algae Cultivation
- Biopharmaceutical Industrial Development, Formulation and Delivery
- Biomolecular Synthesis and Purification
- Biofuel Sensing and Analysis
- Microbial Fuel Synthesis and Bioremediation
- Bioreactor Dynamics Modeling and Control

Environmental Technology
- Ash and Land Biomass Utilisation
- Collected Sludge Capture
- Water and Waste Water Treatment
- Synagex Cleaning Technology
- Bioremediation of Contaminated Soil

Fuels and Energy
- Biofuel and Biorefinery Production from Edible and non-Edible Resources
- Synagex, Biofuels and Bioenergy Production from Biomasses
- Fundamentals, Optimization and Combustion of Solid Fuels
- Thermochemical Cycle Processes for Hydrogen Production
- Fuel Cell
- Energy Efficient CO2 Capture Technology
- Heat Integration and pinch Technology
- Flows and Thermal Engineering (including Non-fluid Heat Transfer)

Materials Science and Engineering
- Carbon Nanotube/Nanofiber
- Magnetic Block and Activated Carbon
- Nanocomposites and Advanced Composites
- Local Biomass based Biofuel
- Nanostructured materials for Fuel Cells, Rechargeable Batteries and Supercapacitors
- Polymer Nanocomposites
- Colloid and Surface Chemistry
- Rheology and Material Characterisation

Process Systems Engineering
- Process modeling, Control and Optimisation
- Multi-scale Modelling and Advanced Control for Complex Systems
- Process Integration for Simultaneous Energy, Water and Waste Mitigation
- Supply Chain Planning and Management
- Multivariate Big Data Analysis
- Statistical Process Monitoring and Interferential Sensor Design
- Numerical Studies and CFD Analysis of Chemical Processes and Equipment

Separation Processes
- Supercritical Fluid and Solvent Extractions of Plant, Tree Resin and Essential Oil
- Steam Distillation for Natural Product Recovery
- Membrane Gas Separation
- Adsorption for Waste Water Treatment

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Curtin University
Malaysia
As there is a strong demand from industry for graduates, we are uniquely positioned, aligned and in-tune with industry and the wider business community. Our students and faculty are highly motivated and produce outcomes that drive the economy locally and internationally.

We provide an excellent environment for students to pursue undergraduate and postgraduate studies, with state-of-the-art teaching and research facilities and a fee structure that is very reasonable by international standards. Since its establishment in 2000, the Department of Chemical Engineering has expanded significantly and continues to undergo great change to ensure that the latest developments in the discipline are integrated into our teaching and learning activities. A number of competitive research grants have been secured by our staff from the government and industries, and research collaborations have been established with industries and academic institutions both locally and internationally.

Our chemical engineering courses, which are identical to those offered at Curtin’s main campus in Perth, are fully accredited by the Board of Engineers Malaysia (BEM), The Institution of Engineers Australia (IChemE) and IChemE, UK.

As a result, Curtin Malaysia's Chemical Engineering graduates are well-positioned to pursue careers in a variety of industries, including petrochemicals, pharmaceuticals, food and beverage, environmental engineering, and more.

Dr. Chea Hon Bing, Dr. Apas Saptorn, Dr. Aaron Goh, Mr. Freddie Panau and Ms Florence Wong, Process modeling and optimization of composting of empty fruit bunches (EFB) from oil palm from development of high quality organic compost, Funded by CELTEX Resources Sdn Bhd.

Dr. Perumal Kumar et al., Studies on the effect of viscosity on the heat transfer performance of Al2O3 - water nanofluid in circular and non-circular ducts, Funded by Malaysian Ministry of Higher Education (MoHE) under Exploratory Research Grant Scheme (ERSGS).

Dr. Michael K. Danesh at al., Kinetic modeling of spray-drying for death pathogen detection and bio-screening, Funded by Malaysia Ministry of Higher Education (MoHE) under Fundamental Research Grant Scheme (FRGS).

Dr. Apas Saptorn et al., Development of a robust non-Gaussian algorithm to develop adaptive soft sensors for sensing various states in industrial processing plants, Funded by Malaysian Ministry of Higher Education (MoHE) under Fundamental Research Grant Scheme (FRGS).

Dr. Stephanie Chan et al., Characterisation and modelling of all oil palm fruits and bunches subject to microwave heating, Funded by Malaysian Ministry of Higher Education (MoHE) under Fundamental Research Grant Scheme (FRGS).

Dr. Zelham A. Jawad et al., A Fundamental Role of Angioto Groups of Cellulose Acetate Multi Walled Carbon Nanotubes Hybrid Membrane for Gas Separation, Funded by Malaysian Ministry of Higher Education (MoHE) under Fundamental Research Grant Scheme (FRGS).

Dr. Zelham A. Jawad et al., Functionalized Polymers Thin Films for Upgrading Gases from Biomass Conversion, Funded by Malaysian Ministry of Higher Education (MoHE) under Long Term Research Grant Scheme (LRGS).

Dr. Stephanie Chan et al., Production and quality determination of organic fertilizer derived from oil palm decanter cake, Funded by MSM (Palm Oil) MDS Sdn Bhd.

Dr. Fawzi A. Towng, Dr. Bridgid Chin, Dr. Dyulac Artin, Dr. Mahara A. Najmaw, Structure, Morphology and Properties relationship of well defined architecture cellulose nanorhodchine reitified chitosan-pegylated acid noncospheres via atomic transfer radical polymerization (ATRP) in an ionic liquid, Funded by Malaysian Ministry of Higher Education (MoHE) under Fundamental Research Grant Scheme (FRGS).

Dr. Bridgid Chin et al., Cathodic Fast Polypyridyls of Bice Hubs for Synaps Production, International Foundation for Science (IFS), Sweden.

Dr. Apas Saptorn, Influence of microwave irradiation on surface tension of nanofoods, Funded by Hygo Overseas Research Network (HORN) 2015, Japan.

Dr. Leo Shiew Wei, Production of bacteriocin-like inhibitory factor (BLF) and its application for the pretreatment for making drinking water using RO membrane water supplier machines, Funded by Hygo Overseas Research Network (HORN) 2017, Japan.

Dr. Leo Shiew Wei et al., Spectroscopic analysis of volatile fatty acid and related activity interactions of chitosan-like inhibitory of Clostridium strain to improve sludge dewatering, Funded by Malaysian Ministry of Higher Education (MoHE) under Fundamental Research Grant Scheme (FRGS).

Dr. Stephanie Chan, Encapsulation of Mg nanoparticles for reduced cytotoxicity in reverse muscle therapy for type II diabetes treatment, Funded by Hygo Overseas Research Network (HORN) 2018, Japan.

Dr. Apas Saptorn et al., Development of a rapid and cost-effective detector and estimator of antibiotics in-ground Sarawak black pepper using spatial and spectral image analysis, Funded by Digital Sarawak Centre of Excellence, Sarawak Multimedia Authority 2018.