

Research Topics

Direction: Choose three topics you are interested in from the following research topics. Please choose the topics which match to host university that you choose in the application form.

For SERE Program

Research Topic (SERE)	Required Qualification/Background	Host University
1 Highly porous ceramics from solid wastes from agricultural products	-	KU
2 The development of THz ultra-sensitive sensor by using surface Plasmon resonance on periodic metal grooves.	Background study in Physics	SIIT
3 Development of cost-effective wastewater desalination system for agricultural application	Chemical or Environmental Engineering	KU
4 Nanomaterials for Biolipid Conversion via Photocatalysis	Chemistry or Chemical Engineering	SIIT or KU
5 Nanomaterials for Biolipid Conversion via Thermal Catalysis	Chemistry or Chemical Engineering	SIIT or KU
6 Metal-organic framework and metal-organic framework-derived electrocatalysts for CO₂ reduction to chemicals	Chemistry or Chemical Engineering	SIIT or KU
7 Fractionation and Conversion of Renewable Carbon Biomass to Bioproducts by Biorefinerfy Concept	-	SIIT or KU
8 Enzymatic and Biocatalytic Conversion of Sugars and Lignocellulose-derived Compounds to Biochemicals	-	SIIT or KU
9 Highly porous ceramics for capturing toxic gases	-	KU
10 Adsorption behavior and kinetics of PFOS/PFOA (emerging pollutant) on activated carbons derived from agricultural wastes	-	SIIT

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11 The development of THz ultra-sensitive sensor by using surface Plasmon resonance on periodic metal grooves.	Background study in Physics	SIIT
12 Bio-based Composites	-	SIIT
13 High value products from agricultural wastes	-	SIIT
14 Nanomaterials for sensor applications	-	SIIT
15 Nanomaterials for environmental applications	-	SIIT
16 Waste water treatments	-	SIIT
17 Heat reflective coating materials	-	SIIT
18 Graphene oxide for applications in cation removal and making deionized water	-	SIIT
19 Nanomaterials for Biolipid Conversion via Photocatalysis	-	SIIT
20 Metal-organic framework and metal-organic framework-derived electrocatalysts for CO2 reduction to chemicals	-	SIIT
21 Materials for sensors and automation	-	SIIT
22 Surface modification and functionalization of carbon material for Zoledronic removal.	-	SIIT
23 Production of D-lactic acid from C3 sugar to C5 sugar by using carbon supported metal oxide catalyst	-	SIIT
24 Alternative Nanoparticle Sunscreen for cosmetic applications	-	SIIT
25 Biopolymer composite materials based on polylactid acid and Chitin/ Chitosan fiber from fungi mushroom extract	-	SIIT

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26 Surface treatments of metallic materials for fog harvesting application	-	SIIT
27 Functional materials from biopolymer composited with Metal-organic Framework (MOFs)	-	SIIT
28 Fabrication of MOFs/Polyurethane composites for environmental applications	-	SIIT
29 Chitosan-Activated carbon-Poly(vinyl alcohol) Composite Films for Controlled Release applications	-	SIIT
30 Development of Titanium dioxide-MXene powders for removal of antibiotic in water	-	SIIT
31 Photocatalytic degradation of glyphosate pesticide in the presence of TiO₂ pallet for sustainable agriculture	-	SIIT
32 Development of cost-effective wastewater desalination system for agricultural application	-	SIIT
33 Chemical recycling of degradable biopolymers for circular economy	-	SIIT
34 Biopolymer composite materials based on polylactide and fiber from mushroom extract	-	SIIT
35 Development of polyolefins and fiber with superhydrophobic surfaces	-	SIIT
36 Toughening of poly lactic acid (PLA) with super-hydrophobic surface	-	SIIT
37 Degradation mechanisms of PLA, PBS	-	SIIT
38 Study on impact of tourism in historical zone of Thailand	-	SIIT

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39 Study on Awareness and Understanding of Health Protection Measure from Haze	-	SIIT
40 Thailand electrical and electronic waste management	-	SIIT
41 Life cycle assessment (LCA) and Circular economy (CE) of Agricultural Residue	-	SIIT
42 Analysis of characterization models for human toxicity caused by coal-fired power plant in Thailand	-	SIIT
43 Developing a Workforce Scheduling Model to Reduce Occupational Heat Stress	-	SIIT
44 Life cycle assessment (LCA) and Circularity of crude palm oil for supporting food and fuel production	-	SIIT
45 Wastewater Treatment From Biogas Process	-	SIIT
46 The Development of Gel Electrolyte	-	SIIT
47 Color and COD removal of waste water from biogas process	-	SIIT
48 Investigation of optimal conditions for microbial cultivation and its immobilization on microbial fuel cell electrodes	-	SIIT
49 Electrode modification and characterization for microbial fuel cell applications	-	SIIT
50 Analytical developments and preliminary assessment of human exposure to organophosphate flame retardants from indoor dust	-	SIIT
51 Assessment of impacts from plastic wastes in Thailand	-	SIIT
52 Materials in controlled release applications	-	SIIT

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53 Effect of Ammonia Contaminated Fly Ash on Properties and Microstructure of Mortar	-	SIIT
54 Exploration and assessment of materials and pollutant pathway of household products	-	SIIT
55 Removal of heavy metals from solution by using low cost adsorbents	-	SIIT
56 Sustainability Analysis for Lower Choa phraya river using system dynamic approach	-	SIIT
57 Improving Thai rice germination rate using cold plasma	-	SIIT
58 Biorefinery separation of value added components from palm kernel cake (PKC)	-	SIIT
59 Microbial enzyme discovery and application for green industry	-	SIIT
60 Biorefinery and biomass conversion to chemicals and materials	-	SIIT
61 Dihydroxyacetone Production by Gluconobacter Thailandicus TBRC 3351 (BCC14436) on Non-Chloride Containing Crude Glycerol	-	SIIT
62 Bioconversion of crude glycerol to produce high value products	-	SIIT
63 Geological Investigation of Cut Slope Failure in Contact Zone	-	SIIT
64 LIDAR applications in smart farming	-	SIIT
65 The Rapid and Label-free Detection of Microorganism in foods by using the terahertz metamaterial sensor integrated with microfluidics system	-	SIIT

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66 Development of Smith-Purcell Free Electron Laser for THz-imaging	-	SIIT
67 Assessment of land use impacts on primary production and biodiversity	-	SIIT or KU
68 Development of damage factor for plastic waste in life cycle impact assessment	-	SIIT or KU
69 Human health damage factor for air pollution in life cycle impact assessment	-	SIIT or KU
70 National Resource Scarcity Footprint of Thailand based on an environmentally-extended input-output model	-	SIIT or KU