Project 9:

*Institute:	Curtin University
*Home Supervisor(s):	Jaya Dantas, Elizabeth Newnham, Sarah Egan and Rosa Alati
Host Supervisor(s):	Please refer to the last row in this table
*Project Title:	Intervention study to improve COVID-19 related mental health
*Project Description (150 words limit):	**Context:** Throughout the pandemic, communities have played a vital role in reducing the risk of transmission through compliance with physical distancing orders, increased sanitation, and routine testing. However the combination of health risks, strict public safety measures, and ongoing financial insecurity have had unique and long-lasting effects on community mental health.[1] **Objective:** • Assess long-term mental health trajectories among communities affected by COVID-19 outbreaks • Determine the psychological, household, community and workplace factors associated with public health compliance and community resilience. • Conduct a longitudinal study of risk and protective factors associated with mental health outcomes across three time points, to determine trajectories of change. • Develop a website and associated smartphone app to support… **Reference** 1. Van Bavel JJ, Baicker K, Boggio PS, et al. Using social and behavioural science to support COVID-19 pandemic response. *Nature Human Behaviour* 2020: 1-12.
Student:	
Affiliation:	
Interested Faculty members at IITKGP	1. Dr. Arista Lahiri, Assistant Professor, Dr B C Roy Multi-Speciality Medical Research Centre, alahiri@bcrmrc.iitkgp.ac.in, [https://orcid.org/0000-0001-9486-2565 | ORCiD: 0000-0001-9486-2565] 2. Dr. Rabindra Kumar Pradhan, Associate Professor, Department of Humanities and Social Sciences, (Office), +913222 282346 (Residence), rabikp2050@gmail.com, rkpradhan@hss.iitkgp.ac.in, Institute Home page: http://www.iitkgp.ac.in/department/HS/faculty/hs-rkpradhan 3. Aradhna Malik, PhD Assistant Professor Vinod Gupta School of Management Phone: Off: +91 3222 281762 Mobile/ WhatsApp: +91 96471 82743, amalik@vgsom.iitkgp.ac.in

Project 10:

*Institute:	Curtin University
*Home Supervisor(s):	Rekha Koul, Jaya Dantas, Elizabeth Newnham, Sarah Egan and Rosa Alati
Host Supervisor(s):	Please refer to the last row in this table
*Project Title:	Development of educational resources for the control and management of infectious diseases including COVID-19 for community education;
*Project Description (150 words limit):	**Context:** The findings of the mental health survey and creation of an intervention to improve mental health literacy and resulting mental health need to be disseminated to a broad range of health care professionals, researchers and stakeholders in India and Australia. **Objective:** • Conduct workshops for healthcare providers in Australia and India to foster mental health literacy tailored to the specific impacts of COVID-19, and improve population mental health outcomes through low-intensity interventions. • The aim is to widely disseminate the findings of the mental health and wellbeing WP8 to influence policy and ensure ongoing dissemination and use of the intervention materials in both countries.
Student:	
Affiliation:	
Interested Faculty members at IITKGP	1. Dr. Arista Lahiri, Assistant Professor, Dr B C Roy Multi-Speciality Medical Research Centre, alahiri@bcrmrc.iitkgp.ac.in, [https://orcid.org/0000-0001-9486-2565 | ORCiD: 0000-0001-9486-2565] 2. Aradhna Malik, PhD Assistant Professor Vinod Gupta School of Management Phone: Off: +91 3222 281762 Mobile/ WhatsApp: +91 96471 82743, amalik@vgsom.iitkgp.ac.in 3. Dr. Somnath Ghosal, Assistant Professor, Centre for Rural Development and Innovative Sustainable Technology (CRDIST), drsomnathghosal@gmail.com; somnath@iitkgp.ac.in, Office – 83894 4. Prashant Anand, Assistant Professor, Dept. of ARP, prashantanand@arp.iitkgp.ac.in, ar.prashantanand@gmail.com

Project 13:

*Institute:	Curtin University
*Home Supervisor(s):	Dr Richard Alorro, Assoc. Prof. Laurence Dyer, Dr. Navdeep Dhami
Host Supervisor(s):	Please refer to the last row in this table
*Project Title:	Recovery of Critical and Strategic Metals from Mine Tailings
*Project Description (150 words limit):	Critical and strategic metals (CSMs), such as, rare earth elements (REEs), cobalt (Co), nickel (Ni), niobium (Nb), indium (In), tellurium (Te), lithium (Li) and others are essential for trade and national security of a country. The supply risk of critical and strategic metals, which are instrumental in advanced technology applications, has sparked the development of reprocessing technologies to reclaim these metals from secondary sources, particularly mine tailings. CSMs are present in varied concentrations in a multitude of mine tailings and other mine waste streams. Mine tailings can be considered important secondary sources of CSMs and reprocessing these materials is an integral component of circular economy and is imperative for sustainable mining operations. Therefore, development of innovative, low-cost and environment-friendly recycling technology for these materials is necessary. This study aims to develop extraction and recovery technologies to reclaim CRMs from mine tailings.
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Affiliation:	TBC
Interested Faculty members at IITKGP	1. Dr.Chenna Rao Borra Assistant Professor Department of Metallurgical and Materials Engineering Phone : +913222283240 ; Email: chenna.borra@metal.iitkgp.ac.in Website: http://www.iitkgp.ac.in/department/MT/faculty/mt-chenna.borra 2. Sudha Goel, Associate Professor, Department of Civil Engineering, sudhagiitkgp@gmail.com, sudhagoel@civil.iitkgp.ac.in, Office – 83436, Mobile – 9434042840 3. Ramkrishna Sen, Professor & Head || Department of Biotechnology, Phone:+91-3222-283752(O); 283753(R), 9474618882 (Mobile) Email: rksen@bt.iitkgp.ac.in; rksen@yahoo.com

Project 14:

*Institute:	Curtin University
*Home Supervisor(s):	Dr Richard Alorro, Dr Bogale Tadesse, Dr. Mobin Salasi
Host Supervisor(s):	Please refer to the last row in this table
*Project Title:	Repurposing Mine Tailings as Cost-Effective Adsorbents for Environmental Applications
*Project Description (150 words limit):	Mine tailings can be rich in aluminosilicate minerals, which are necessary for the preparation and synthesis of zeolites and layered double hydroxides (LDH) sorbents. Zeolites are microporous, hydrated aluminosilicates of alkali elements, alkaline earth metals, or other cations, and are known to have ion-exchange properties. They are widely used as adsorbents, catalysts, ion-exchangers and detergent builders. Zeolites can be synthesized from pure reactants, clay minerals, natural zeolites, and also from solid wastes (coal fly ash, mine and process tailings). LDH, on the other hand, are hydrotalcite-like materials or anionic clays containing positively charged metal hydroxide sheets known for its high sorption capacity for heavy metals and organic contaminants in wastewater. Both zeolites and LDH sorbents can be synthesized from aluminosilicate-rich tailings by thermal and chemical methods. This study aims to synthesize zeolites and LDH from mine tailings and investigate their application as adsorbents for environmental applications, such as wastewater treatment.
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Affiliation:	TBC
Interested Faculty members at IITKGP	1. Basab Chakraborty, Associate Professor, RMSoEE, basab@see.iitkgp.ac.in, Office – 282416, Mobile – 9830334979 2. Manoj Kumar Tiwari, Assistant Professor, School of Water Resources, mktiwari@swr.iitkgp.ac.in, Office – 81886, Mobile – 9002491978 3. Sudha Goel, Associate Professor, Department of Civil Engineering, sudhagiitkgp@gmail.com, sudhagoel@civil.iitkgp.ac.in, Office – 83436, Mobile – 9434042840 4. Ramkrishna Sen, Professor & Head || Department of Biotechnology, Phone:+91-3222-283752(O); 283753(R), 9474618882 (Mobile) Email: rksen@bt.iitkgp.ac.in; rksen@yahoo.com

Project 15:

*Institute:	Curtin University
*Home Supervisor(s):	Dr Richard Alorro, Assoc. Prof. Laurence Dyer, Dr Chi Phan
Host Supervisor(s):	Please refer to the last row in this table
*Project Title:	Utilisation of Mine Tailings as Material for Carbon Dioxide Sequestration
*Project Description (150 words limit):	Magnesium-rich and calcium-rich minerals in mine tailings, such as clay, hornblende, and serpentinite are excellent sources of carbonate forming ions (i.e., Mg and Ca) for carbon dioxide sequestration. One of the widely known methods to sequester CO_2 is the indirect carbon sequestration, which refers to the process in which materials, such as rocks, are excavated and made to contact with CO_2 to form carbonates using the available ions. This study would look into indirect carbonation through pH swing method - a process in which carbonates are formed through a two-step scheme of leaching and subsequent carbonation. The selection of appropriate leaching reagent and a combination of leaching variables are amongst the most important factors for metal dissolution and will be investigated thoroughly. Precipitation/carbonation will be conducted by injecting pure CO_2 gas into the leaching solution containing the metal ions in a reactor. Relevant precipitation factors will also be studied.
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