



Deutscher Akademischer Austauschdienst German Academic Exchange Service



Indian Institute of Technology Bombay, Powai, Mumbai, India

TUM-IITB-SEED Centre

DAAD

Two-month Summer Internship Program-2025

Sn	Proposed title	Objectives	Key tasks	Eligibility criteria
1	Techno-economic investigation of a Biomass Gasifier integrated with Wood Chipping Machine	 Analyse the integration of a wood chip machine with a biomass gasifier for energy sustainability. Optimise fuel efficiency and gas output in biomass gasification. Evaluate the economic feasibility of using biomass gasifier with wood chips as a clean cooking alternative. 	 Study different types of wood chippers. Conduct performance testing of wood chipping machine on various types of wood sizes. Study the gasification process, feedstock properties, and gas composition. Experiment with different wood chip sizes and moisture content for improved biomass gasification. 	Third-year student from Mechanical/ Agricultural/Energy Engineering
2	Optimisation of LPG- Driven Roti-Maker for Enhanced Energy Efficiency	 Analyse the challenges in existing LPG-driven roti maker, including fuel efficiency, heat distribution, and automation. Optimise LPG consumption to reduce operational costs while maintaining roti quality. Improve heating mechanism and cooking speed for better productivity. 	 Study of LPG consumption patterns of roti-maker. Measure energy loss and safety concerns in traditional models. Experiments for better energy utilisation by reducing heat loss. Conduct a cost-benefit analysis. 	Third-year student from Mechanical/ Energy Engineering
3	Maintaining electric rickshaws and conducting performance evaluations	 Analyse common faults in electric rickshaws used in rural areas and develop cost-effective repair solutions. Investigate electric rickshaw performance under rural conditions, including battery efficiency, motor durability, and terrain adaptability. 	 Identify causes of failure of electric rickshaws under rural conditions. Making the electric rickshaw operational Investigate the feasibility of locally sourced spare parts and repair methods. Develop a sustainable repair and service model to support rural mobility and livelihood. 	Third-year student from Electrical/Electronics /Energy Engineering
4	Assessment and Maintenance of Solar	• An evaluation of the present condition of the solar rooftop system along with its inverter system	 Conducting the energy audit of school promises Check panel structure, panel orientation, tilt angle, shading effect, and inverter selection. 	Third-year student from Mechanical/Electrical









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	Rooftop Systems in Rural Residential School	•	Analyse power consumption patterns and energy-saving	•	Monitoring and measuring energy generation from roof-top system. Estimation of energy-saving Design a solar system maintenance plan for school staff (cleaning, fault detection, inverter checks). Study of effect of cleaning of panels on energy generation	/Electronics/Energy Engineering
5	Designing a Solar Panel and Inverter System for a Biomass Gasifier	•	Design an integrated solar panel and inverter system to provide the power supply to a biomass gasifier. Evaluate the techno-economic feasibility of a solar-biomass gasification system for clean cooking alternatives for rural areas.	•	Identify suitable alternatives for providing energy supply to operate blower of biomass gasifier (battery, pedal operated, solar energy driven). Determine the solar PV capacity and the size of the inverter needed to operate the biomass gasifier unit. Evaluate energy efficiency, load demand balancing, and peak hour management. Propose a maintenance and training program for local staff.	Third-year student from Mechanical/Electrical /Electronics/Energy Engineering
6	Performance Investigation of Solar Dryer for Vegetables and Fruits Drying	•	To analyse the drying rate, thermal efficiency and energy savings.	•	Study of solar dryers Measure the overall dimensions and create a schematic of the solar dryer to be tested. Study and assembly of the various types of measuring instruments required for testing the solar dryer Recording observations. Estimation of drying rate, energy efficiency and energy saving.	Third-year student from Mechanical/Electrical /Electronics/Energy Engineering









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7	Mapping of Different	•	To create accurate maps and analyse the	•	Gather geographic coordinates, satellite imagery,	Third-year student
	Technologies Installed		spatial distribution of different		and attribute data related to installed	from Computer
	in the Different Sites		technologies across various sites for		technologies and import them into QGIS.	science/Information
	Using QGIS (Quantum		better decision-making and planning.	•	Organise different datasets into layers, clean	Technology/AI-ML
	Geographic Information	•	To integrate multiple datasets (e.g.,		data, and format it appropriately for accurate	Engineering
	System) Software		satellite images, GPS coordinates,		spatial representation.	
			infrastructure details) into a centralised	•	Export maps and analysis results for	
			GIS platform for efficient monitoring,		documentation, presentations, and strategic	
			evaluation, and reporting.		decision-making.	

For more information: Please free to contact- Vikrant P. Katekar, <u>vpkatekar@gmail.com</u>, 9822603804

Watch: <u>https://www.youtube.com/watch?v=HjAm9xADvkc</u>

Application Form Link: <u>https://forms.gle/NN9aawW28ucAWpYW9</u> Or scan:

