



Category-I University

Central University of Rajasthan



Renewable carbon and fuels from organic waste

Overview

Renewable carbon and fuels from organic waste represent a sustainable approach to energy production by utilizing waste materials such as agricultural residues, food scraps, and biomass. Through processes like anaerobic digestion, gasification, and pyrolysis, organic waste can be converted into biogas, biofuels, and syngas, reducing reliance on fossil fuels and lowering greenhouse gas emissions. This method not only generates renewable energy but also addresses waste management challenges, carbon capture contributing to a circular economy and mitigating climate change by recycling carbon that is already part of the natural cycle.

This 5-day course is designed to provide participants with a comprehensive understanding of the processes involved in generating renewable carbon and fuels from organic waste. The course will cover the theoretical principles, practical applications, and current advancements in the field. This course will enrich the capacity building for renewable carbon and fuels from organic waste to meet the sustainable developmental goals. The Participants will gain insights into sustainable waste management practices, carbon sequestration, and the production of biofuels.

Course participants will learn these topics through lectures and hands-on experiments. Also case studies and assignments will be shared to stimulate research motivation of participants.

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| Course | Renewable carbon and fuels from organic waste : April 07 - April 11, 2025 Number of participants for the course will be limited to fifty. |
| Who Should Attend | <ul style="list-style-type: none"> ▪ Individuals working in renewable energy, waste management, or environmental sustainability fields for exploration. ▪ Environmental science or engineering, chemical engineering, or related sciences graduates/post graduates interested to learn application of RC&F in your profession. ▪ Student /Faculty /Researcher from academic institution or executive from industry interested in learning how to do research on RC&F or want to work with RC&F. |
| Fees | <p>The participation fees for taking the course is as follows: Participants from abroad : US \$500 + 18% GST Industry/ Research Organizations: INR 5,000 + 18% GST Academic Institutions: INR 3,000 + 18% GST Students other than CURaj: INR 800 + 18% GST Students belongs to SC/ST/ CURaj: INR 500 + 18% GST <i>There will be a concession of 50% of the fee for the faculty of the CURaj.</i> The above fee includes all instructional materials, laboratory equipment usage charges, Tea & Snacks, and Lunch. The participants may be provided with accommodation on payment basis as well as first come first serve basis. Registration link https://forms.gle/opfTa87vLae7mRmR6</p> <p>Selection and Mode of Payment Candidates registering early / specialization will be given preference in the shortlisting process. Selected candidates will be intimated through e-mail. They have to remit the necessary course fee to the Bank as per the details given below. Account details for payment: Bank A/C No.: 666710210000001; Central University of Rajasthan Merit Scholarship Bank of India, Branch: CURAJ; IFSC: BKID0006667</p> |



Foreign Faculty



Dr. Sandeep Kumar is a Professor & Chair, Department of Civil & Environmental Engineering, Old Dominion University (ODU), Norfolk, USA. Specialized in Hydrogeophysics, Electromagnetic modeling including Decarbonization, Microalgae, Circular Economy, Renewable Carbon, Biofuels, Bioproducts, Electrochemical Hydrogenation, Microplastics, Lithium Extraction, Adsorption, Waste Management, and Nutrients Recycling.

National/ Host Faculty



Dr. Abhishek Sharma is a Professor, Department of biotechnology and chemical engineering, Manipal University, Jaipur. Specialized in process design and development, Biomass to bioenergy, waste to wealth.



Prof. (Dr.) Laxmi Kant Sharma is a Professor and Head Department of Environmental Science, School of Earth Sciences, CURaj. Specialized in Environmental Remote Sensing, Biomass & Biodiversity assessment, Wetland Ecosystem Monitoring for Carbon capture.



Dr. Garima Kaushik is a Senior Assistant Professor, Department of Environmental Science, School of Earth Sciences, CURaj. Specialized in Bioremediation, Enzyme kinetics, Remediation of Emerging contaminants (Pesticides, PAH, PPCPs BPA, Plastic additives), Industrial Wastewater Treatment, Solid and Plastic Waste Management.



Dr. D. Bhagawan is an Assistant Professor, Department of Environmental Science, School of Earth Sciences, CURaj. Specialized in Environmental Pollution Remediation & Waste refining for value added products, Industrial Wastewater Treatment, Solid and Plastic Waste Management.

About the Central University of Rajasthan

The Central University of Rajasthan (CURaj) was established in the year 2009 by an Act of Parliament (Act No. 25 of 2009). This University was established with the aspiration to be one of India's most dynamic and vibrant universities in order to impart cutting-edge education to all the learner communities. In the last 16 years of its journey, the University has emerged as a green and pollution-free campus which promises to provide an aesthetic and salubrious environment to nurture and optimize academics, research, and holistic development by engaging the students and staff members in various sports and cultural activities that are crucial for maintaining the well-being of the students and nurturing their potentials.

About the Department of Environmental Science

The Department of Environmental Science came into existence under the School of Earth Sciences at the Central University of Rajasthan in July 2011. As an emerging economy, India is at its peak of infrastructural development and needs environmental experts, trained personnel for monitoring pollution and assessing the environmental impacts of developmental projects. Looking at the present scenario and futuristic needs, the Department has established the objectives:

- To impart knowledge of environmental problems of regional and global scale.
- To train the students for scientific analyses of environmental components for efficient environmental decision-making and management.
- To act as an interface between academia and organisations for interdisciplinary & multidisciplinary collaboration for environmental research.



Prof. Anand Bhalerao
Hon'ble Vice Chancellor
CU Raj

GIAN Local Coordinator
Prof. Sanjib Kumar Panda
Department of Biochemistry

Dr. Devesh Sharma
Dean & Associate Professor
School of Earth Sciences, CURaj
Prof. Laxmi Kant Sharma
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Course Co-ordinator

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Registration link
<https://forms.gle/opfTa87vLae7mRmR6>

Venue:
Department of Environmental Science, School of Earth Sciences, 4A6 Building, Central University of Rajasthan, NH-8, Bandarisindri, Ajmer, Rajasthan-305817

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Tentative schedule
“Renewable carbon and fuels from organic waste”
Department of Environmental Science

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| Day1 (9:00 am – 4:30 pm) |
| Inaugural session Lecture 1: Overview of renewable energy sources Lecture 2: Introduction to carbon sequestration Lecture 3: Chemical composition and characteristics of organic waste Quiz 1 |
| Day 2 (10:00 am – 5:30 pm) |
| Lecture 4: Potential of different organic waste types for renewable carbon and fuel production Lecture 5: Conversion technologies for biomass to biofuels Lecture 6: Biochemical and thermochemical processes Lecture 7: Understanding carbon capture technologies Tutorial 1: Analysis of waste samples |
| Day 3 (10:00 am – 4:30 pm) |
| Lecture 8: Applications of captured carbon in renewable energy Lecture 9: Environmental and economic implications of CCU Lecture 10: Introduction to Hydrochar and Biochar Lecture 11: Applications of Hydrochar and Biochar Quiz 2 |
| Day 4 (8:30 am – 6:00 pm) |
| Waste to wealth demonstration at Manipal University, Jaipur: Travel by bus Lecture 12: National faculty Tutorial 2: National faculty/ Foreign faculty Tutorial 3: National faculty/ Foreign faculty Tutorial 4: National faculty/ Foreign faculty Return to CURaj |
| Day 5 (10:00 am – 5:30 pm) |
| Lecture 13: Foreign faculty state art of Technologies Lecture 14: National faculty Quiz 3 Feedback and summery Certificate distribution/ Valedictory |