
Departmental Seminar

Seminar Title	: Return Seminar: Efficient real-time-drying monitoring system for industrial scale continuous microwave dryer of agricultural products
Speaker	: Piyush Sharma
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Venue	: CH-306
Date and Time	: 13 Nov 2024 (17.00)
Abstract	: This study presents an innovative approach to real-time monitoring of the drying process in an industrial-scale continuous microwave dryer. Microwave drying is a promising technology due to its rapid and uniform heating capabilities, offering significant advantages over conventional drying methods. However, optimizing and controlling the drying process in real time is crucial to ensure product quality and energy efficiency. The proposed monitoring system, integrates sensors and data analytics techniques to continuously record and analyse key parameters such as moisture content (MC), drying rates, and the amount of moisture removed during the drying process with the help of psychometric properties of the air. The estimation of the energy requirements for the drying and co-relating it with the energy supplied by the microwaves in the system helps in gathering useful insights about the flow of energy and its losses that can further be optimized to minimise energy consumption in the system. Notably, the developed system can be seamlessly integrated as an add-on to existing microwave drying systems with minimal modifications, offering enhanced process control capabilities. This approach enables operators to obtain real-time insights into the drying process, facilitating precise adjustments to parameters such as microwave power, airflow, and product feed rate. Ultimately, this integrated monitoring system enhances process control, minimises energy consumption, and maximises product quality in industrial-scale agricultural drying operations.