

Extrusion Processing in the Food and Feed Industries

Overview

Extrusion is a widely used food and feed processing technology used in applications such as snacks, breakfast cereals, pasta, texturized vegetable proteins, confectionery, pet food, aquatic feed and industrial products. It uses various raw materials based on grains ranging from corn, wheat and rice to sorghum, oats, soybeans and other legumes. Ingredients based on meat, dairy, lipids, sugars and gums are also very common. This course is designed to provide students with an understanding of extrusion technology and the ability to apply it to product development and production. Topics will range from fundamentals and theory of extrusion technology to various state-of-the-art applications in the food processing industry. Emphasis will be placed on process analysis and problem-solving techniques. Successful completion of the course will allow students to gain a thorough understanding of the principles of extrusion through real life examples that allow evaluation of the effects of process and ingredient variables on properties of finished products. The course will also involve laboratory exercises, in which students will operate lab-scale extrusion equipment to produce readily-recognizable commercial products such as corn puffs, breakfast cereal, etc. Modeling and simulation techniques will also be covered for gaining a fundamental understanding of extrusion process dynamics. The course is intended towards engineers, scientists and food processors. Lectures will be delivered by internationally renowned faculties from India and abroad. The course is planned and offered as per the norms set by IIT Kharagpur for ISWT subject.

Modules	A: Basic Concepts of Extrusion : June 6 – June 10 B: Advanced Topics in Extrusion : June 13 - June 17 Number of participants for the course will be limited to twentyfive.
You Should Attend If...	<ul style="list-style-type: none"> ▪ You are likely to be benefited by learning the fundamental aspects of extrusion and its applications in the food and feed processing industry. ▪ You are a student/scholar/faculty member of Agricultural Engineering, Food Engineering, Food Technology, Post-Harvest Engineering, Nutrition or Chemical Engineering (with special interest) ▪ You are a food industry executive, food technologist, quality assurance manager, quality control specialist, process engineer or ingredient manufacturer/supplier interested in state-of-the-art in hardware and operations of extrusion systems.
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$500 Industry/ Research Organizations: ` 30000 Academic Institutions: ` 10000 The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty



Dr. Sajid Alavi is a Professor in the Department of Grain Science and Industry at Kansas State University, Manhattan, Kansas, USA. He received his Ph.D. in Food Science/ Food Engineering from Cornell University, and has 20 years of experience with extrusion and other processing technologies. Dr. Alavi designs solutions for food, feed and pet food processors, and is involved in processing and food aid related projects around the world. He has been invited to speak at numerous international forums in USA, Italy, South Africa, Brazil, India, Mozambique and China. He has provided training and networking opportunities to 900 industry leaders from 30 countries and all six continents through courses and workshops such as the internationally reputed short course “Extrusion Processing: Technology and Commercialization”. He received the prestigious AACC International Young Research Scientist Award in 2010. He has secured \$7.5 million in funding for his program, and authored/ edited more than sixty peer-reviewed publications, popular articles, books and book chapters.



Dr. Ashis Kumar Datta is a Professor of Agricultural and Food Engineering at IIT Kharagpur with over 33 years of experience in teaching and research. His research has focused on thermorheology of non – Newtonian liquids, theory of biomaterials drying and mathematical modeling and simulation in biofouling estimation and control in heat exchangers.



Dr. P. Srinivasa Rao is an Associate Professor of Agricultural and Food Engineering Department with over 21 years of experience in teaching and research. His research has focused on varied areas such as development of ready to eat foods by twin screw extrusion technology and non-thermal preservation of foods.

Course Co-ordinator

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