



Glossary

- Food Engineering deals with the understanding of dynamic physicochemical phenomena that occur during food processing, packaging and storage for the purpose of designing and operating processes that deliver safe, nutritious, and marketable foods.
- The components of this core competency include several engineering topics, such as (a) engineering principles including mass and energy balances, thermodynamics, fluid flow, and heat and mass transfer, (b) the principles of food preservation including low and high temperature processes, water activity, (c) the principles of food processing techniques, such as drying, high pressure, aseptic processing, extrusion, (d) packaging materials and methods, and (e) cleaning and sanitation.
- The importance of food processing begins once the agricultural produce is harvested. As the crop production is seasonal, the derived food products should be made available throughout the year. The food should be preserved and made available during famine, floods, other natural calamities, and emergency situations.
- Most food processes utilize six different unit operations: heat transfer, fluid flow, mass transfer, mixing, size adjustment (reduction or enlargement), and separation.
- The general concepts associated with processing of foods to achieve shelf life extension and preserve quality include (1) addition of heat, (2) removal of heat, (3) removal of moisture, and (4) packaging of foods to maintain the desirable aspects established through processing.
- Most raw food materials naturally contain microorganisms, which bring both desirable and undesirable effects to processed food.
- Knowledge of various engineering (physical, thermal, and thermodynamic) properties of food, biological, and packaging material is critical for successful product development, quality control, and optimization of food processing operations.