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Nota di contenuto	I Introduction -- The Food Processing Industry -- History of Food Processing -- Processing Concepts -- General Processing Concepts -- Kinetics of Quality Change -- Summary -- References -- 2 Thermal Processing Principles -- Influence of Elevated Temperatures on Microbial Populations -- Establishment of Product Shelf-Life and/or Safety -- Influence of Thermal Process on Product Quality -- to Process Calculations -- References -- 3 Pasteurization and Blanching -- Purpose of the Processes -- Description of Processing Systems -- Establishment of the Pasteurization Process -- Determination of Blanching Process -- Processes for Product Quality Improvement -- Summary -- References -- 4 Commercial Sterilization -- General Concepts -- Description of Commercial Sterilization Systems -- Heating and Cooling of Food in a Container -- Establishment of Process Times -- The Influence of Commercial Sterilization on Product Quality -- Summary -- References -- 5 Refrigerated Storage -- General Principles of Refrigerated Storage -- Control of Microbial Growth During Refrigerated Storage -- Deterioration of Product Quality -- Establishing Shelf-Life in Refrigerated Foods -- Future Developments -- References -- 6 Freezing and Frozen-Food Storage -- Description of Food Freezing Systems -- Direct-Contact Freezing Systems -- Individual Quick Freezing (IQF) -- Estimation of Freezing Time -- Food

Freezing and Product Quality -- Storage of Frozen Foods -- Summary -- References -- 7 Liquid Concentration -- Evaporation -- Membrane Separations -- Membrane Systems -- Cleaning and Sanitation -- Food Quality in Membrane Operations -- Freeze Concentration -- Types of Freeze Concentration Units -- Economic Design of Freeze Concentration -- References -- 8 Dehydration -- State of Water in Foods -- Effects of Drying on Product Quality -- Moisture Sorption and Desorption -- Rate of Dehydration -- Factors That Influence Drying -- Drying Methods -- Spray Drying -- Freeze Drying -- References -- 9 Other Separation Processes -- Physical/Mechanical Separations -- Diffusional/Equilibrium Separations -- References -- 10 Food Extrusion -- Extruders and Extrusion Operations -- Principles of Extrusion Operations -- Effects of Extrusion on Foods -- Recent Developments in Extrusion -- References.

Sommario/riassunto

The approach to teaching the concepts of food processing to the undergrad- uate food science major has evolved over the past 40 years. In most under- graduate food science curricula, food processing has been taught on a commodity basis. In many programs, several courses dealt with processing with emphasis on a different commodity, such as fruits and vegetables, dairy products, meat products, and eggs. In most situations, the emphasis was on the unique characteristics of the commodity and very little empha- sis on the common elements associated with processing of the different commodities. Quite often the undergraduate student was allowed to select one or two courses from those offered in order to satisfy the minimum standards suggested by the Institute of Food Technologists. The current 1FT minimum standards suggest that the undergradu- ate food science major be required to complete at least one food processing course. The description of this course is as follows: One course with lecture and laboratory which covers general characteristics of raw food materials, principles offood preserva- tion, processing factors that influence quality, packaging, water and waste management, and sanitation. Prerequisites: general chemistry, physics, and general microbiology.