

# ***FOOD SCIENCE & TECHNOLOGY***

**MIS03 09138**

*This course will examine food and the food industry along the producer to table continuum. Topics that may be addressed include production, processing, preparation, preservation, and packaging principles. This course may integrate the application of basic food science principles, government regulations, emerging trends, sustainability, biotechnology, packaging and marketing, transportation and distribution, and career opportunities as related to the world of food science and technology. Lab experiences can demonstrate how food technology affects the consumer.*

**Credit** ½ or 1 credit  
Max credit = 1

**Level** Grades 9-12

<b>Standard 9</b>	<b><i>FOOD SCIENCE, DIETETICS, and NUTRITION</i></b> Integrate knowledge, skills, and practices required for careers in food science, food technology, dietetics, and nutrition.	
<b>Topic 9.1</b>	<b>Analyze career paths within food science, food technology, dietetics, and nutrition industries.</b>	
	<b>Student Competencies</b>	
	9.1.1	Explain the roles and functions of individuals engaged in food science, food technology, dietetics, and nutrition careers.
	9.1.2	Analyze opportunities for employment and entrepreneurial endeavors.
	9.1.3	Summarize education and training requirements and opportunities for career paths in food science, food technology, dietetics, and nutrition.
	9.1.4	Analyze the correlation between food science, dietetics, and nutrition occupations and local, state, national, and global economies.
	9.1.6	Analyze the role of professional organizations in food science, food technology, dietetics, and nutrition careers.
<b>Topic 9.2</b>	<b>Apply risk management procedures to food safety, food testing, and sanitation.</b>	
	<b>Student Competencies</b>	
	9.2.1	Analyze factors that contribute to food borne illness.

	9.2.4	Use the Hazard Analysis Critical Control Point (HACCP) during all food handling processes (the flow of food) to minimize the risks of food borne illness.
	9.2.5	Demonstrate practices and procedures that assure personal and workplace health and hygiene.
	9.2.6	Demonstrate standard procedures for receiving and storage of raw and prepared foods.
	9.2.7	Classify cleaning and sanitizing materials and their correct use.
<b>Topic 9.3</b>	<b>Evaluate nutrition principles, food plans, preparation techniques, and specialized dietary plans.</b>	
	<b>Student Competencies</b>	
	9.3.1	Analyze nutrient requirements across the life span addressing the diversity of people, culture, and religions.
	9.3.2	Analyze nutritional data.
	9.3.3	Apply principles of food production to maximize nutrient retention in menus.
	9.3.4	Assess the influence of cultural, socioeconomic, and psychological factors on food and nutrition and behavior.
	9.3.5	Analyze recipe/formula proportions and modifications for food production.
	9.3.6	Critique the selection of foods to promote a healthy lifestyle.
	9.3.7	Plan menus, applying the exchange system to meet various nutrient needs.
<b>Topic 9.5</b>	<b>Demonstrate use of science and technology advancements in food product development and marketing.</b>	
	<b>Student Competencies</b>	
	9.5.1	Analyze various factors that affect food preferences in the marketing of food to a variety of populations.
	9.5.2	Analyze data in statistical analysis when making development and marketing decisions.
	9.5.3	Prepare food for presentation and assessment.
	9.5.4	Maintain test kitchen/laboratory and related equipment and supplies.
	9.5.5	Implement procedures that affect quality product performance and sustainability.
	9.5.6	Conduct sensory evaluations of food products.
	9.5.7	Conduct testing for safety of food products, utilizing available technology.
<b>Topic 9.6</b>	<b>Demonstrate food science, dietetics, and nutrition management principles and practices.</b>	
	<b>Student Competencies</b>	
	9.6.2	Implement food preparation, production, and testing systems.
	9.6.3	Apply standards for food quality and sustainability.
	9.6.6	Analyze new products utilizing most current guidelines and innovations in technology.
	9.6.7	Implement procedures that provide cost effective products.
<b>Topic 9.7</b>	<b>Demonstrate principles of food biology and chemistry.</b>	
	<b>Student Competencies</b>	
	9.7.1	Explain the properties of elements, compounds, and mixtures in foods and food products.
	9.7.2	Analyze the effects of thermodynamics on chemical reactions in foods and food products.
	9.7.3	Explain the process of ionization in the formation of acids and bases and effect on food and food products.
	9.7.4	Explain the impact of molecular structure of simple and complex carbohydrates on digestion, nutrition, and food preparation procedures.

	9.7.5	Relate the composition of lipids and proteins to their functions in foods and their impact on food preparation and nutrition.
	9.7.6	Explain the value of molds and enzymes in food products.
	9.7.7	Analyze the impact of food presentation methods and techniques on nutrient value, safety and sanitation, and consumer appeal of food and products.

### **Overview**

*The Committee felt that an Overview is unnecessary for Food Science and Technology, as it is a stand-alone course and does not reach into the more general classes taught in lower levels.*