

Food Science and Processing Systems

ACADEMIC SKILLS

AA SPEAKING AND LISTENING

AA1 Utilize effective verbal and non-verbal communication skills

AA2 Participate in conversation, discussion, and group presentations

AA3 Communicate and follow directions/procedures

AA4 Communicate effectively with customers and co-workers

AB READING AND WRITING

AB1 Locate and interpret written information

AB2 Read and interpret workplace documents

AB3 Identify relevant details, facts, and specifications

AB4 Record information accurately and completely

AB5 Demonstrate competence in organizing, writing, and editing using correct vocabulary, spelling, grammar, and punctuation

AB6 Demonstrate the ability to write clearly and concisely using industry specific terminology

AC CRITICAL THINKING AND PROBLEM SOLVING

AC1 Utilize critical-thinking skills to determine best options/outcomes (e.g., analyze reliable/unreliable sources of information, use previous experiences, implement crisis management, develop contingency planning)

AC2 Utilize innovation and problem-solving skills to arrive at the best solution for current situation

AC3 Implement effective decision-making skills

AD MATHEMATICS

AD1 Perform basic and higher level math operations (e.g., addition, subtraction, multiplication, division, decimals, fractions, units of conversion, averaging, percentage, proportion, ratios)

AD2 Solve problems using measurement skills (e.g., distance, weight, area, volume)

AD3 Make reasonable estimates

AD4 Use tables, graphs, diagrams, and charts to obtain or convey information

AD5 Use deductive reasoning and problem-solving in mathematics

AE FINANCIAL LITERACY

AE1 Locate, evaluate, and apply personal financial information

AE2 Identify the components of a budget and how one is created

AE3 Set personal financial goals and develop a plan for achieving them

AE4 Use financial services effectively

AE5 Demonstrate ability to meet financial obligations

AF INTERNET USE AND SECURITY

AF1 Recognize the potential risks associated with Internet use

AF2 Identify and apply Internet security practices (e.g., password security, login, logout, log off, lock computer)

AF3 Practice safe, legal, and responsible use of technology in the workplace

AG INFORMATION TECHNOLOGY

AG1 Use technology appropriately to enhance professional presentations

AG2 Demonstrate effective and appropriate use of social media

AG3 Identify ways social media can be used as marketing, advertising, and data gathering tools

AH TELECOMMUNICATIONS

AH1 Select and use appropriate devices, services, and applications to complete workplace tasks

AH2 Demonstrate appropriate etiquette when using e-communications (e.g., cell phone, e-mail, personal digital assistants, online meetings, conference calls)

EMPLOYABILITY SKILLS

EA POSITIVE WORK ETHIC

EA1 Demonstrate enthusiasm and confidence about work and learning new tasks

EA2 Demonstrate consistent and punctual attendance

EA3 Demonstrate initiative in assuming tasks

EA4 Exhibit dependability in the workplace

EA5 Take and provide direction in the workplace

EA6 Accept responsibility for personal decisions and actions

EB INTEGRITY

EB1 Abide by workplace policies and procedures

EB2 Demonstrate honesty and reliability

EB3 Demonstrate ethical characteristics and behaviors

EB4 Maintain confidentiality and integrity of sensitive company information

EB5 Demonstrate loyalty to the company

EC SELF-REPRESENTATION

EC1 Demonstrate appropriate dress and hygiene in the workplace

EC2 Use language and manners suitable for the workplace

EC3 Demonstrate polite and respectful behavior toward others

EC4 Demonstrate personal accountability in the workplace

EC5 Demonstrate pride in work

ED TIME, TASK, AND RESOURCE MANAGEMENT

ED1 Plan and follow a work schedule

ED2 Work with minimal supervision

ED3 Work within budgetary constraints

ED4 Demonstrate ability to stay on task to produce high quality deliverables on time

EE DIVERSITY AWARENESS

EE1 Recognize diversity, discrimination, harassment, and equity

EE2 Work well with all customers and co-worker

EE3 Explain the benefits of diversity within the workplace

EE4 Explain the importance of respect for feelings, values, and beliefs of others

EE5 Identify strategies to bridge cultural/generational differences and use differing perspectives to increase overall quality of work

EE6 Illustrate techniques for eliminating gender bias and stereotyping in the workplace

EE7 Identify ways tasks can be structured to accommodate the diverse needs of workers

EE8 Recognize the challenges and advantages of a global workforce

EF TEAMWORK

EF1 Recognize the characteristics of a team environment and conventional workplace

EF2 Contribute to the success of the team

EF3 Demonstrate effective team skills and evaluate their importance in the workplace (e.g., setting goals, listening, following directions, questioning, dividing work)

EG CREATIVITY AND RESOURCEFULNESS

EG1 Contribute new ideas

EG2 Stimulate ideas by posing questions

EG3 Value varying ideas and opinions

EG4 Locate and verify information

EH CONFLICT RESOLUTION

EH1 Identify conflict resolution skills to enhance productivity and improve workplace relationships

EH2 Implement conflict resolution strategies and problem-solving skills

EH3 Explain the use of documentation and its role as a component of conflict resolution

EI CUSTOMER/CLIENT SERVICE

EI1 Recognize the importance of and demonstrate how to properly acknowledge customers/clients

EI2 Identify and address needs of customers/clients

EI3 Provide helpful, courteous, and knowledgeable service

EI4 Identify appropriate channels of communication with customers/clients (e.g., phone call, face-to-face, e-mail, website)

EI5 Identify techniques to seek and use customer/client feedback to improve company services

EI6 Recognize the relationship between customer/client satisfaction and company success

EJ ORGANIZATIONS, SYSTEMS, AND CLIMATES

EJ1 Define profit and evaluate the cost of conducting business

EJ2 Identify "big picture" issues in conducting business

EJ3 Identify role in fulfilling the mission of the workplace

EJ4 Identify the rights of workers (e.g., adult and child labor laws and other equal employment opportunity laws)

EJ5 Recognize the chain of command, organizational flow chart system, and hierarchy of management within an organization

EK JOB ACQUISITION AND ADVANCEMENT

EK1 Recognize the importance of maintaining a job and pursuing a career

EK2 Define jobs associated with a specific career path or profession

EK3 Identify and seek various job opportunities (e.g., volunteerism, internships, co-op, part-time/full-time employment)

EK4 Prepare a resume, letter of application, and job application

EK5 Prepare for a job interview (e.g., research company, highlight personal strengths, prepare questions, set-up a mock interview, dress appropriately)

EK6 Participate in a job interview

EK7 Explain the proper procedure for leaving a job

EL LIFELONG LEARNING

EL1 Acquire current and emerging industry-related information

EL2 Demonstrate commitment to learning as a life-long process and recognize learning opportunities

EL3 Seek and capitalize on self-improvement opportunities

EL4 Discuss the importance of flexible career planning and career self-management

EL5 Employ leadership skills to achieve workplace objectives (e.g., personal vision, adaptability, change, shared vision)

EL6 Recognize the importance of job performance evaluation and coaching as it relates to career advancement

EL7 Accept and provide constructive criticism

EL8 Describe the impact of the global economy on jobs and careers

EM JOB SPECIFIC TECHNOLOGIES

EM1 Identify the value of new technologies and their impact on driving continuous change and the need for life-long learning

EM2 Research and identify emerging technologies for specific careers

EM3 Select appropriate technological resources to accomplish work

EN HEALTH AND SAFETY

EN1 Assume responsibility for safety of self and others

EN2 Follow safety guidelines in the workplace

EN3 Manage personal health and wellness

OCCUPATIONAL SKILLS

OA FOOD SCIENCE TRENDS

OA1 Discuss the history and describe /explain the components (e.g., processing, distribution, byproducts) of the food products and processing industry

OA2 Evaluate changes and trends in the food products and processing industry

OA3 Predict trends and implications in the food products and processing industry

OA4 Identify and explain environmental and safety concerns about the food supply

OA5 Discuss the issues of safety and environmental concerns (e.g., genetically modified organisms, microorganisms, contamination, irradiation) about foods and food processing

OA6 Determine appropriate industry response to consumer concerns to assure a safe and wholesome food supply

OB REGULATORY GROUPS AND LAWS

OB1 Explain the purpose of agencies (i.e., USDA, FDA, WHO) that are part of/or regulate the food products and processing industry

OB2 Evaluate the changes in the food products and processing industry brought about by industry organizations or regulatory agencies

OB3 Interact effectively with organizations, groups, and regulatory agencies that affect the food products and processing industry

OB4 Explain the importance and usage of industry standards in food products and processing

OB5 Discuss the application of industry standards in the food products and processing

OB6 Prepare a plan for implementation of industry standards in food products and processing programs

OC OPERATIONAL PROCEDURES

OC1 Explain the importance of developing and maintaining, Sanitation Standard Operating Procedures (SSOP)

OC2 Evaluate the SSOP of a food products and processing company

OC3 Develop SSOP for a food products and processing company

OC4 Explain the purpose of Good Manufacturing Practices (GMP)

OC5 Evaluate the GMP of a food products and processing company

OC6 Implement GMP for a food products and processing company

OC7 Identify reasons for using a planned maintenance program to maintain equipment and facilities

OC8 Develop a basic equipment and facility maintenance program

OC9 Perform basic equipment and facility maintenance in a food product and processing operation

OD HAZARD ANALYSIS AND CRITICAL POINT (HACCP)

OD1 Describe contamination hazards and outline procedures to eliminate possible contamination hazards (e.g., physical, chemical, biological) associated with food products and processing

OD2 Analyze the effectiveness of a food products and processing company's Critical Control Point (CCP) procedures

OD3 Identify and explain the implementation of the seven principles of HACCP

OD4 Implement an HACCP program for a food products and processing facility

OE SAFETY AND SANITATION

OE1 Explain techniques and procedures for the safe handling of food products

OE2 Evaluate food product handling procedures

OE3 Demonstrate approved food product handling techniques

OE4 Describe the importance of performing quality assurance tests on food products

OE5 Perform quality assurance tests on food products

OE6 Interpret quality assurance test results and apply corrective procedures

OE7 Describe the effects foodborne pathogens have on food products and humans (e.g., surfaces, environmental)

OE8 Explain the importance of microbiological tests in food product preparation, listing common spoilage and pathogenic microorganisms

OE9 Conduct and interpret microbiological tests for foodborne pathogens and implement corrective procedures

OE10 Explain the importance of record keeping (e.g., good agricultural practices, HACCP) in a food products and processing system

OE11 Discuss documentation procedures (e.g., good agricultural practices, HACCP) in a food products and processing system

OE12 Demonstrate proper record keeping (e.g., good agricultural practices, HACCP) in a food products and processing system

OE13 Describe the importance and difference of performing quality assurance and quality control tests

OE14 Interpret the importance and difference of performing quality assurance and quality control tests

OE15 Perform the importance and difference of performing quality assurance and quality control tests

OF WORKER SAFETY PROCEDURES

OF1 Explain safety standards that must be observed in facility design and equipment use

OF2 Outline guidelines for personnel safety in the food products and processing industry

OF3 Evaluate a facility to determine the implementation of safety procedures

OG SCIENCE APPLICATION

OG1 Discuss how research and industry developments lead to improvements in the food products and processing industry

OG2 Design a research project in food science using the scientific method

OG3 Conduct research in food science and interpret results to improve food products

OG4 Explain the application of chemistry to food science

OG5 Explain how the chemical and physical properties of foods influence nutritional value and eating quality

OG6 Determine the chemical and physical properties of food products

OG7 Explain the Food Guide Pyramid in relation to essential nutrients for the human diet

OG8 Compare and contrast the nutritive value of food and food groups

OG9 Design a daily food guide for a healthful diet

OG10 Discuss common food constituents (e.g., proteins, carbohydrates, fats, vitamins, minerals)

OG11 Compare and contrast food constituents and their relative value to product taste and appearance

OG12 Analyze food products to identify food constituents

OG13 Identify common food additives (e.g., preservatives, antioxidants, buffers, stabilizers, colors, flavors) and their legal limits

OG14 Describe the purpose of common food additives

OG15 Formulate and explain the incorporation of additives into food products

OG16 Explain the importance of food labeling including allergies to the consumer

OG17 Explain the required components of a food label

OG18 Prepare and label foods according to the established standards of regulatory agencies

OG19 Describe factors (e.g., regulation, creativity, and economics) in planning and developing a new food product

OG20 Plan and create a new food product

OG21 Perform sensory testing and marketing functions to characterize and determine consumer preference and market potential

OH HARVESTING, SELECTION, AND INSPECTION

OH1 Identify quality and yield grades of food products

OH2 Discuss factors that affect quality and yield grades of food products

OH3 Assign quality and yield grades to food products according to industry standards

OH4 Select raw food products based on yield grades, quality grades, and related selection criteria

OH5 Perform quality control inspections of raw food products for processing

OH6 Implement procedures to maintain original food quality and yield

OH7 Identify and describe accepted animal treatment and harvesting techniques

OH8 Compare and contrast accepted animal treatment and harvesting techniques

OH9 Harvest animals using regulatory agency approved technique

OH10 Describe the importance of pre-mortem and post-mortem inspections of animals for harvest

OH11 Explain observations and the process of both pre-mortem and post-mortem inspection of animals in relation to the production of food products

OH12 Conduct pre-mortem and post-mortem inspections of animals

OI EVALUATION OF FOOD PRODUCTS

OI1 Identify and describe foods derived from meat, egg, poultry, fish, and dairy products

OI2 Discuss desirable qualities of processed meat, egg, poultry, fish, and dairy products

OI3 Evaluate, grade, and classify processed meat, egg, poultry, fish, and dairy products

OI4 Identify and describe products derived from fruits and vegetables

OI5 Discuss desirable qualities of fruit and vegetable products

OI6 Evaluate, grade, and classify processed products from fruits and vegetables

OI7 Identify and describe products derived from grains, legume, and oilseeds

OI8 Discuss desirable qualities of grain, legume, and oilseed products

OI9 Evaluate, grade, and classify finished products derived from grains, legumes, and oilseeds

OJ FOOD PROCESSING

OJ1 Identify and explain common weights and measures used in the food products and processing industry

OJ2 Weigh and measure food products and perform conversions between units of measure

OJ3 Use weights and measures to formulate and package food products

OJ4 Explain methods and materials for processing foods for sale as fresh food products

OJ5 Prepare foods for sale and distribution as fresh food products

OJ6 Evaluate foods prepared for the fresh food market based on factors such as shelf life, shrinkage, appearance, and weight

OJ7 Identify methods of food preservation and give examples of foods preserved by each method

OJ8 Explain the processes of food preservation methods

OJ9 Preserve foods using various methods and techniques

OJ10 Explain techniques for preparing ready-to-eat food products

OJ11 Demonstrate techniques of preparing ready-to-eat food products

OJ12 Evaluate ready-to-eat food products

OJ13 Explain materials and methods of food packaging and presentation

OJ14 Select and utilize packaging materials in storing processed foods and raw food products

OJ15 Analyze foods stored in various packaging materials to determine which materials retain desirable food qualities

OJ16 Identify and explain storage conditions to preserve product quality

OJ17 Select methods and conditions for storing raw and processed food products

OJ18 Compare and contrast foods stored under varying conditions for quality, shelf life, and intended use