

South Dakota Hospitality, Tourism & Recreation

June 12-14 2017

Sioux Falls

Participants:

Inger Wegener, Consultant, Saint Paul, MN
Amber Rost, South Dakota Department of Education, Madson, SD
Renaë Borchard, FACS Teacher, Aberdeen Central High School, Aberdeen, SD
Kathy Engst, Teacher, Huron High School, Huron, SD
Cindy Gerlach, FACS/Culinary Instructor, Mitchell Technical Institute, Mitchell, SD
Nicole Graves, Professor, South Dakota State University, Sioux Falls, SD
Ellen Hohbach, FACS/ProStart Teacher, Plankinton High School, Volga, SD
La Kisha Jordan, Teacher, McIntosh High School, McIntosh, SD
Lenessa Keehn, CTE Director, Lead-Deadwood School District, Deadwood, SD
Coleen Keffeler, CTE Coordinator, Sturgis Brown High School, Sturgis, SD
Debra Kraft, Culinary Instructor, Mobridge Pollock School District, Mobridge, SD
Charlotte Mohling, Curriculum Coordinator, Wessington Springs School District, Wessington Springs, SD
Sarah Perez, FACS/Culinary Arts Teacher, Madison Central High School, Madison, SD
Seanna Regynski, Membership Services Director, SD Retailers Association, Pierre, SD

Participants in the Business Management & Administration, Marketing, and Hospitality & Tourism groups all met in Sioux Falls June 12-14. Some activities were conducted as a whole group and others in separate sessions with each group. To begin, participants from all groups introduced themselves stating name, location, and curricular area of expertise.

An introductory video, *Success in the New Economy* written and narrated by Kevin Fleming and produced by Bryan Y. Marsh, was shared. This video (available on the Internet at <https://vimeo.com/67277269>), describes a fallacy in the traditional “college for all” model of education and encourages individuals to select career paths based on interests and skills. Discussion suggested that this would be a good message for legislators and parents. Solid career and technical education programs exist, but do not always attract the students. It is important to ensure that students gain a well-rounded educational experience through their career and technical education programs. To influence parents, focus on the return on investment of the programs and for the students, focus on their needs rather than presume a 4-year degree is the path to success – explore, explore, explore. Things that matter include market and industry forces, but also the individual talents, aptitudes and abilities of the students. Focus attention on the forgotten middle percentage of students and remember that high school is a time for exploration.

It was noted that the purpose of the work was to develop South Dakota’s state standards for hospitality, tourism & recreation to ensure that they:

- Are aligned with industry needs
- Prepare students to be successful in employment and in postsecondary training
- Establish a sequence of courses leading to completion of a program of study.

It was clarified that standards describe “what” is to be learned, not “how” it is to be learned.

Information was provided regarding the importance of the federal Carl D. Perkins Career and Technical Education Act to the work and an update on progress toward reauthorization of the Act, last authorized

by Congress in 2006. Participants were reminded that Perkins has had strong bipartisan support in Congress and may be up for reauthorization this year.

The role of the standards committee was clarified to show that the standards committee members were selected because they were subject matter experts who would:

- Take the suggestions of industry
- Utilize personal expertise about how students best learn, and
- Write a standards draft.

It was further clarified that the work of the committee will go through industry validation and multiple public hearings before consideration for adoption by the State Board of Education.

It was noted that much of the early work of the standards review committee will be to identify programs of study. A program of study was defined as:

- A nonduplicative sequence of both academic and technical courses
- Beginning no later than grade 11 and continuing for at least two years beyond high school
- Culminating in a degree, diploma or certification recognized as valuable by business/industry partners.

A program of study was viewed as the bridge connecting preparatory and advanced work in high school with further study at the postsecondary level through a collegiate program or advanced training through work.

A summary of a recent labor market analysis for South Dakota was presented, with separate slides shown identifying the 20 largest industry clusters, the fastest growing industry clusters by percentage growth and increase in employment demand, and the occupations with a projected demand of 50 or more.

Participants were asked to identify industry trends by describing what was new in the industry and what is no longer done in the industry. It was intended that this information would guide discussion about where new standards were needed and where existing standards could be deleted. For hospitality, tourism & recreation the discussion suggested:

New

- | | |
|------------------------------|----------------------------|
| • Healthy eating – GMOs | ○ Sculpture walks |
| • Dietary needs | ○ Camping |
| • Fresh – farm to table | ○ Quilters tours |
| • Meals shipped to home | • Hosting events |
| • Technology | ○ Arts oriented |
| ○ Groupons | ○ Leagues, youth and adult |
| ○ Sports venue reservations | ○ Bike trails |
| ○ Social media | ○ Bird watching |
| ○ Training and data security | ○ Activity-oriented |
| • Local attractions | • Family oriented |
| ○ Staycations | ○ Value for \$ |
| ○ scavenger hunts | • Use of scrapes |
| ○ Trolley | ○ Reuse all of the product |
| ○ Scrapbookers | ○ Reducing waste |

- All in one resorts
 - Hunting/fishing
 - Pro tournaments
- Importance of plating
 - Snapchat and social media
- Instant reviews
 - On social media
 - Yelp, Trip Advisor

Emerging

- Staycations
- Food trucks
- Microbreweries with no food
 - Bring in food trucks
- Smaller menus, specialized menus
- Virtual reality
 - Dirt biking
 - Hiking
- Expectations have increased
- Menu food descriptions
 - Calories, gluten, nut, dairy free
 - Less flowery language, more clearly described
 - Less chemicals
- Fermenting foods as food preservation and probiotics
- Refurbished, repurposed and renovate sites
 - Lodging
 - Food
 - Spas

No longer done

- No more stationary and still needs to be interactive
 - Panorama past vs. present
 - Street view
 - Animal images
 - 3D, animatronic

- Foodie culture
 - Planning trips around food
 - Branding a town and a region
 - Education – learn about food
 - Food culture on TV
 - Triple D
 - Chopped
 - Master Chef
 - Iron Chef
 - Great British Baking Show
- Customer service has upped the game

- Niche
- Apps loyalty programs
- Willingness to use event planners or schedulers
 - Travel planners all details
 - Customized day(s) plan
- Coffee shops in churches, stores
- Entrepreneurship
- New demographic groups for marketing
 - Poverty and low income
 - Retired persons
 - Elder hostels
 - Foraging classes
- Cooking classes
- Wine classes
- Knife skills classes
- Real-time personal interactions

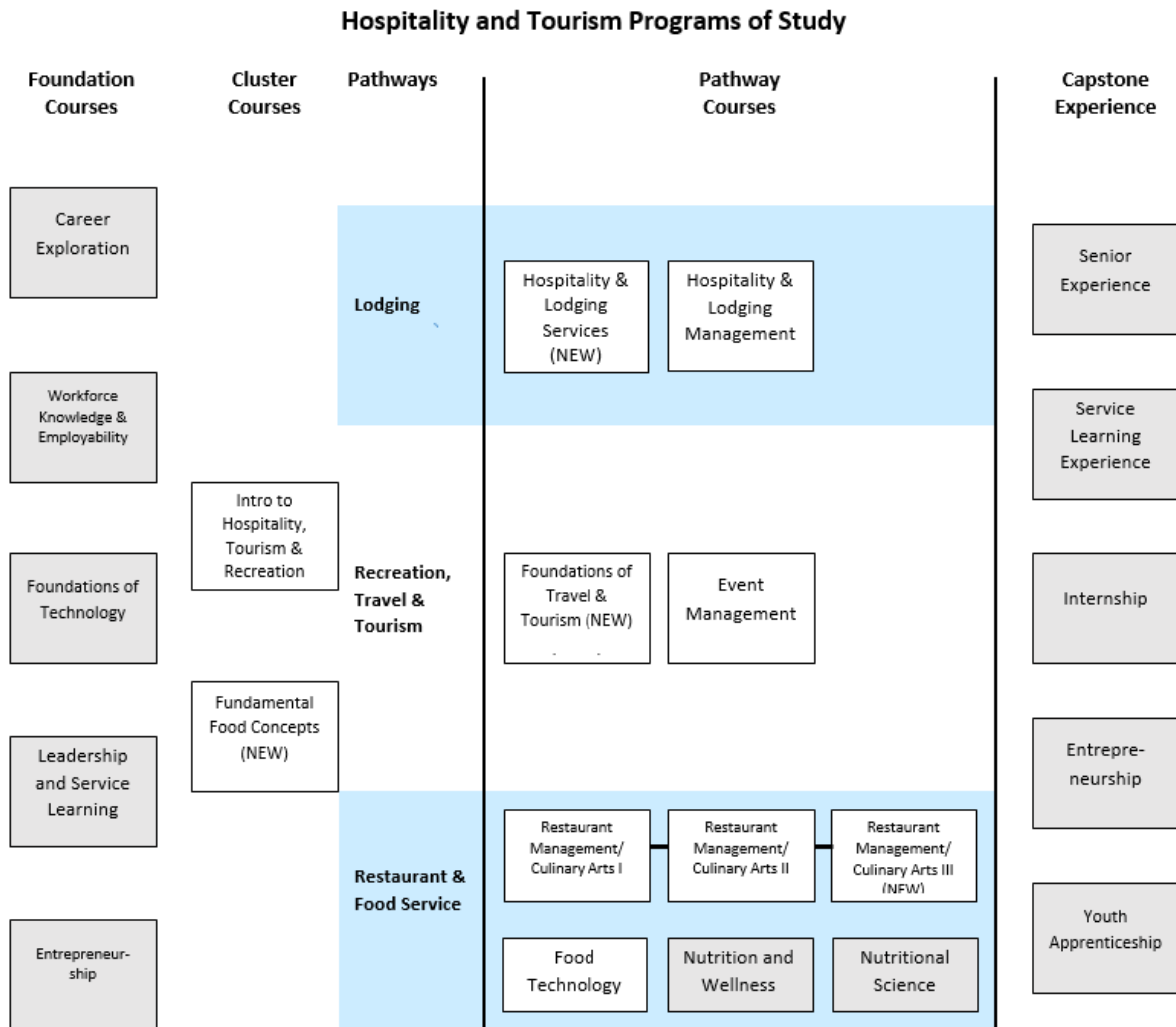
- Pre-packaged and prepped foods – can increase prep time and prep skills
- No malls
- No food courts

Results of a recent survey of employers were shared. The survey was designed to ascertain if employers were having hiring difficulties, if applicants were deficient in either soft or technical skills, and what

options the state might consider in response. One hundred eighty seven survey responses were included in the results with the largest participation from hospitality and tourism (38), architecture and construction (25), manufacturing (20), agriculture, food and natural resources (19), business management (14), finance (12) and marketing (12). In general:

- Four out of five employers noted having hiring difficulties in the previous 12 months.
- Primary reasons for this hiring difficulty were:
 - Low number of applicants (126)
 - Lack of work experience (88)
 - Lack of technical or occupational skills (62)
 - Lack of soft skills (48)
 - Unwillingness to accept offered wages or work conditions (38)
- Occupational areas noting the greatest hiring difficulties were hospitality (37), manufacturing (20) and marketing (20) though these results are skewed by the response rate from the individual sector.
- The most highly noted soft skills lacking were:
 - Initiative (118)
 - Attendance/dependability (114)
 - Communications (99)
 - Customer service (88)
 - Problem solving (78)
- Similarly, employers noted the highest needs for additional training in:
 - Attendance/timeliness/work ethic (75%)
 - Customer service (61%)
 - Problem-solving (52%)
 - Teamwork (41%)
- Forty four percent of employers noted that applicants lacked technical skills.
- Employers asked that the state response focus on:
 - Communications (10)
 - Work ethic (9)

The current state program of study in hospitality, tourism & recreation showed two middle school courses and eight current cluster or pathway courses. Participants were asked to chart out a new program of study incorporating course titles for which standards would be developed. The process involved placing course titles on post-it notes on the wall with an open process to organize or change course titles as the group deemed appropriate, recognizing that some courses which would appropriately fall into the program of study may have been reviewed with standards developed by other groups. The resulting structure is shown in the chart that follows and includes five foundation courses, two cluster courses, ten pathway courses in three separate pathways (lodging; recreation, travel & tourism; and restaurant & food service), and four capstone experience options (expanded to five options with work in June 2017). The structure gives students latitude to move from the cluster courses to any of the pathways. Pathway course options may be taken in any order except for the sequence of three courses in restaurant management/culinary arts.



Members were also asked to look at their Program of Study to make certain that students would be ready to make the transition from middle school to high school and from high school to the postsecondary level. To do so, participants were asked what they would want students to know and be able to do upon entry into programs at the postsecondary level, not as hard prerequisites, but general expectations for students to be ready to participate fully and effectively; and what they would want students to know and be able to do upon entry into secondary programs, reflecting upon whether those expectations were included in the courses available at the middle level or in the foundational courses. For hospitality, tourism & recreation the following skills were identified:

Middle School to High School

- Accountability
- Respect
- Communication skills
- Practice of embedded values
- Consequence – if/then

- Keyboarding – NOT hunt and peck
- Computer skills – search
- Openness to learn – love of learning
- Being prepared to learn (supplies, etc.)

High School to Postsecondary Program

- Communication skills – writing
- Computer skills – more advanced
- Accountability – initiative
- Soft skills (life skills) – respect
 - Embrace diversity
- Basic problem solving skills
- Follow-through – time management
- Responsible to the group
- Read through the text (course syllabus) and follow instructions
- Information literacy
- How to learn, differentiated learning
- Recognition of work culture

Participants were encouraged to identify a “big picture” concept statement describing what was to be accomplished within each course before developing standards. This “big picture” statement would eventually be revised to be an executive summary statement at the time that the standards had been drafted.

Information was provided about what makes good standards. Criteria was shared with the participants. These criteria included:

- Essential – does it define knowledge and skills that an individual must have to participate fully and effectively in programs that prepare them to enter careers with livable salaries, and to engage in career advancement in growing, sustainable industries?
- Rigorous – does it ask a student to demonstrate deep conceptual understanding through the application of knowledge and skills to new situations?
- Clear and specific – does it convey a level of performance without being overly prescriptive? Is it written in a way that the general public would understand?
- Teachable and Learnable – does it provide guidance to the development of curricula and instructional materials? Is it reasonable in scope?
- Measurable – Can it be determined by observation or other means that the student has gained the knowledge and skills to be demonstrated to show attainment of the standard?
- Coherent – Does it fit within the progression of learning that is expected for the program of study?
- Sequential – Does it reinforce prior learning without being unnecessarily repetitive? Does it provide knowledge and skills that will be useful as the student continues through the program of study?
- Benchmarked – Can the standard be benchmarked against industry or international standards? Does it prepare the student to be successful in the regional, state and global economies?

State agency staff met in May of 2015 to review the processes to be used for standards review. During that session the staff identified other criteria to be considered when writing standards:

- Connections to postsecondary programs
- Relevant across the content area
- Compatible with virtual learning
- Reflects business/industry input
- Adaptable to change over time
- Allows for instructional creativity
- Appropriate for the target audience
- Aligned with relevant academic content
- Applicable to student organizations
- Recognizes unique features of CTE

These additional criteria were shared with participants for their consideration during standards development, and an exercise was conducted in which participants individually, and then as a group, reviewed four sample standards.

Brief mention was made of resources available in the Dropbox in which members shared information. The Dropbox review showed categories of information provided in the general section and noted that a Working Drafts folder would be created in which participants would store their work.

A Standards Template was shared with the participants and reviewed:

- The course title was inserted at the top.
- A grid of administrative information was completed to the extent the information was known.

This grid included:

- The Career Cluster [Hospitality, Tourism & Recreation]
- The Course Code [to be added by state staff if not known]
- Any prerequisites or recommended prior coursework
- Credits [generally established by the individual school district]
- Graduation requirement [generally established by the individual school district]
- Program of study and sequence [a listing of the components of the program of study]
- Student organization options
- Coordinating work-based learning appropriate for the course
- Industry certifications [if appropriate for the course]
- Dual-credit or dual enrollment options if available
- Teacher certification requirements [to be completed by state staff]
- Resources
- Course description. Eventually this will be an executive summary describing the course, but in the process participants were encouraged to develop a “big picture” statement about the course to serve as a reminder when developing standards.
- Program of study application: a more detailed description of the elements within the program of study and where the particular course fits within a sequence.
- Course Standards and prods
 - “Prods” is a list of topics to keep in mind when developing standards to see that related topics are included. The prods identified by state staff include:
 - Safety
 - Soft skills
 - Reinforcing academic concepts in math, language arts, science and social studies

- Addressing all aspects of the industry
- Trends [so that students are thinking of the direction that an industry is moving]
- Indicators – the main topics written in terms of a demonstration of knowledge and skills
- Sub-indicators – statements identifying in more detail how the indicator will be demonstrated
- Integrated content – A space that allows for examples, explanation, reference to credentials, alignment with other academic standards or other useful information to bring clarity to the understanding about the intent of the sub-indicator
- Notes – a place for additional information to clarify the intent and expectations of the indicator.

Particular information was shared about Webb’s Depth of Knowledge levels which would be assigned at the sub-indicator level.

An example standards template was shared to ensure understanding.

Working teams were then established to write the standards. Each team selected a course to begin the work. Early drafts were reviewed by all participants to gauge consistency. The consultants reviewed all draft standards each evening and participants were led with guiding questions so that they could refine their own work. Eventually, when standards had been developed for all courses, the participants did a final group review of all standards to give their approval. Final documents were then reviewed by the consultants for format and structure, and saved to the shared Dropbox. Participants were given two weeks to make any final comments or suggestions, at which time the Dropbox was put into a “read-only” status.

For hospitality, tourism & recreation the following cluster and pathway course standards were developed:

Cluster Courses

Introduction to Hospitality, Tourism & Recreation

Students will identify career pathways within the hospitality, tourism and recreation industry.

- Identify opportunities for employment and entrepreneurial endeavors and required education needed within hospitality and tourism pathways
- Describe workplace skills necessary to be successful in the hospitality and tourism industry

Students will examine safety, security and environmental issues related to the hospitality, tourism and recreation industry.

- Examine safety and security concerns to maintain a safe environment for workers and customers
- Identify industry standards which comply with safety policies and procedures

Students will summarize concepts of customer service.

- Evaluate the impact customer relations has on success in the hospitality, tourism and recreation industry
- Distinguish customer service processes to meet customer expectations

Students will discuss ethical and legal responsibilities of hospitality and tourism businesses.

- Discuss issues related to confidentiality and ethics in the hospitality, tourism and recreation industry

- Describe legal rights and responsibilities of hospitality, tourism and recreation employees and guests

Students will demonstrate skills and practices required for careers in hospitality, tourism and recreation industry.

- Apply practices and skills involved in lodging occupations, e.g., safety, security, ethics and customer service
- Apply practices and skills for recreation, travel and tourism services, e.g., safety, security, ethics and customer service
- Apply practices and skills involved in the restaurant and food service industry, e.g., safety, security, ethics and customer service

Fundamental Food Concepts

Students will demonstrate food safety and sanitation procedures.

- Apply established safety rules and guidelines to maintain a safe working environment
- Identify proper first-aid procedures for cuts, burns, and electrical shock
- Identify health and hygiene best practices for food handling, e.g., handwashing, grooming and hygiene
- Identify and apply sanitation rules and regulations
- Identify methods that prevent food-borne illnesses and contamination

Students will apply skills related to kitchen equipment and management.

- Identify types, use and care of kitchen equipment
- Identify food measurement terminology and abbreviations
- Demonstrate proper measuring techniques
- Apply mathematic concept through equivalents, recipe adjustments and conversions
- Identify basic food preparation terminology
- Practice management skills, e.g., shopping lists, table settings, time management, budgeting, and nutritional needs

Students will apply food selection and preparation guidelines while preparing foods.

- Identify components of selecting food products
- Demonstrate preparation methods for basic food products, e.g., quick breads, yeast breads, eggs, fruit smoothies, soups, salads, open-faced sandwiches

Students will identify career pathways within the food service industry.

- Recognize employment opportunities within the food service industry
- Explore education and training opportunities in the food service industry

Lodging pathway

Hospitality & Lodging Services

Students will investigate careers in the lodging pathway.

- Identify current and emerging career opportunities in the hospitality & lodging industry
- Explore education and skills/experiences needed for hospitality and lodging careers
- Discuss legal and ethical aspects of careers in the hospitality & lodging industry

Students will explore lodging and guest amenity options.

- Identify lodging classifications
- Differentiate among the types of lodging accommodations and guest amenities

Students will apply concepts of quality service to assure customer satisfaction.

- Explain guest service and its importance to lodging
- Describe the stages of the guest cycle and roles lodging employees play in each stage
- Demonstrate customer service skills to ensure quality service and guest satisfaction

Students will analyze safety, security and environmental issues in the lodging industry.

- Investigate safe working habits and security procedures for lodging facilities
- Justify purpose of security practices and policies used by lodging facilities
- Assess emergency preparedness plan in lodging facilities

Students will investigate lodging operations of front office and housekeeping.

- Explain elements of front office operations
- Explain elements of housekeeping operations
- Research how technology impacts lodging operations

Hospitality & Lodging Management

Students will investigate career opportunities within hospitality and lodging management.

- Illustrate career progression and promotion procedures
- Compare and contrast management styles

Students will describe organizational structure of hospitality and lodging systems.

- Summarize development and structure of hospitality and lodging businesses
- Analyze how quality of service is influenced by lodging operations
- Illustrate how organizational structure impacts customer service and satisfaction
- Compare and contrast independently-owned, chain-affiliated, franchised and corporate management structures

Students will analyze skills necessary for effective employer/employee relations.

- Describe effective communication skills in management
- Analyze the barriers to effective communication and how to address them
- Summarize leadership and teamwork qualities necessary to organizational success

Students will examine professional responsibilities of managers.

- Summarize safety, security and emergency policies and procedures
- Identify ethical and legal responsibilities that apply to various positions within the organization
- Cite role of labor and employment laws in managerial decision-making

Students will examine managerial responsibilities related to operational finances.

- Research cost, pricing and market demands to promote profitability
- Examine budgeting skills necessary in maintaining fiscal responsibility
- Examine basic accounting procedures for lodging business practices

Recreation, Travel & Tourism pathway

Foundations of Travel & Tourism

Students will investigate careers in the recreation, travel and tourism career pathway.

- Identify current and emerging career opportunities in the recreation, travel and tourism industry
- Explore education and skills/experiences needed for recreation, travel and tourism careers
- Discuss legal and ethical aspects of a career in the recreation, travel and tourism industry

Students will evaluate safety, security and environmental issues related to the recreation, travel and tourism industry.

- Explore geographic regions, focusing on factors that create desirable travel destinations
- Examine the role of Occupational Safety and Health Administration (OSHA) regulations and standards
- Identify role of recreation, travel and tourism regulations and procedures
- Evaluate safety plans and policies as they related to recreation, travel and tourism

Students will evaluate guest services.

- Analyze qualities and characteristics of effective service professionals
- Demonstrate ways to manage and enhance guest experiences
- Compare and contrast company cultures and strategies for exceptional guest service

Students will evaluate travel motivators and consumer needs.

- Identify segments of tourism
- Investigate trends and effects on recreation, travel and tourism practices
- Explore cost of recreation and travel on consumer decisions
- Evaluate effects of technology on consumer behavior and attitudes related to recreation, travel and tourism

Students will investigate financial management in recreation, travel and tourism industry.

- Research costs, pricing and market demands in recreation, travel and tourism industry
- Utilize information from market segmentation to make business decisions
- Explore tourism development in terms of increased sustainability, profitability and benefits to the surrounding community
- Evaluate role of economics, community development and politics in funding recreation, travel and tourism

Event Management

Students will analyze career opportunities in event planning and management.

- Identify career opportunities in event planning and management
- Assess personal and technical characteristics necessary for career success in event planning

Students will explore professional roles and responsibilities of event planning.

- Compare and contrast different kinds of events
- Define components of event coordination
- Explore forms, records, and contracts related to event planning
- Discuss legal, ethical, safety and security responsibilities of event planners

Students will create an event proposal.

- Identify the purpose of the event
- Identify client needs, wants, and expectations

- Create a budget based upon client input
- Determine event logistics
- Present proposal for client feedback

Students will implement planned event.

- Assess use of professional skills and attributes in event implementation
- Demonstrate teamwork, problem-solving, and decision making skills in implementing planned event
- Demonstrate conflict resolution strategies | managing events

Students will evaluate complete event.

- Develop a process for event evaluation
- Draw conclusions regarding effectiveness of event

Restaurant & Food Service pathway

Restaurant Management/Culinary Arts I

Students will analyze career paths and professional practices within the food production and foodservice industries.

- Identify employment opportunities and entrepreneurial endeavors
- Explain roles, duties and functions of individuals engaged in food production and service careers
- Develop personal employment artifacts
- Develop professional habits required by the foodservice industry

Students will demonstrate food and workplace safety and sanitation procedures.

- Apply sanitation procedures to ensure compliance with health codes
- Categorize potentially hazardous foods and food preparation practices
- Practice proper food handling techniques
- Apply safety procedures to maintain a safe work environment
- Identify and correct workplace hazards

Students will demonstrate industry standards in selecting, using and maintaining food production and foodservice equipment.

- Identify types of equipment used in food production
- Maintain tools and equipment following safety procedures
- Demonstrate professional skills in safe handling of knives, tools and equipment

Students will demonstrate menu planning principles and techniques based on standardized recipes to meet customer needs.

- Apply menu planning principles to develop and modify menus
- Complete requisitions for food, equipment and supplies to meet production requirements
- Apply principles of measurement, portion control, conversions, food cost analysis and control, menu terminology and menu pricing to menu planning

Students will demonstrate professional food preparation methods and techniques for menu categories to produce food products that meet customer needs.

- Apply *mise en place* (the concept of everything in its place) through practice

- Execute knife cuts
- Demonstrate professional skills for a variety of cooking methods using professional equipment and current technologies
- Apply fundamentals of time, temperature and cooking methods to cooking, cooling, reheating and holding of a variety of foods
- Prepare a variety of food products using professional techniques

Students will describe foodservice management and leadership functions.

- Explore workplace procedures
- Explore human resource policies, rules, regulations and laws

Students will demonstrate internal and external customer service.

- Identify components of customer service
- Differentiate types of service used in the foodservice industry
- Identify quality service as a strategic component of performance
- Demonstrate respect for diversity and individuals with special needs

Restaurant Management/Culinary Arts II

Students will exhibit professional practices to prepare for careers in the foodservice industry.

- Create/update employment artifacts
- Align employability skills to workplace professionalism

Students will demonstrate food and workplace safety and sanitation procedures.

- Apply sanitation procedures to comply with health codes
- Practice proper food handling techniques
- Apply safe procedures and correct workplace hazards to maintain a safe work environment

Students will demonstrate menu planning principles and techniques based on standardized recipes to meet customer needs.

- Apply menu planning principles to develop and modify menus
- Complete requisitions for food, equipment and supplies to meet production requirements
- Apply principles of measurement, portion control, conversions, food cost analysis and control, menu terminology and menu pricing to menu planning
- Design a variety of menu layouts, themes and design styles
- Explore nutritional needs and their significance to the foodservice industry
- Explore emerging trends in the foodservice industry

Students will demonstrate professional food preparation methods and techniques for menu categories to produce food products that meet customer needs.

- Apply *mise en place* (the concept of everything in its place) through practice
- Execute knife cuts
- Select appropriate cooking techniques
- Evaluate fundamentals of time, temperature and cooking methods to cooking, cooling, reheating and holding of foods
- Prepare food products using professional techniques
- Demonstrate professional plating, garnishing and food presentation techniques

Students will implement foodservice management skills, leadership functions and marketing strategies.

- Apply management principles of the foodservice industry
- Explore sustainability in the foodservice industry
- Implement team building strategies
- Utilize interpersonal skills to resolve conflicts
- Create a marketing plan

Restaurant Management/Culinary Arts III

Students will explore business opportunities in foodservice industry.

- Research career and entrepreneurial opportunities in foodservice industry
- Explore professional organizations in foodservice industry

Students will apply ServSafe principles to foodservice industry.

- Apply hazard analysis critical control points (HACCP) to flow of food
- Research state/federal health laws related to foodservice industry
- Obtain ServSafe Manager certification

Students will demonstrate advanced skills in food production.

- Investigate concepts of sustainability practices
- Investigate emerging trends in foodservice industry

Students will apply specialized skills and knowledge to produce a culminating project.

- Create a plan for project
- Demonstrate effective marketing strategies in foodservice industry
- Create a culminating product
- Develop a skills portfolio

Food Technology

Students will integrate knowledge, skills and practices required for careers in food science, food processing and food production from production to consumption.

- Determine the contributions of food science to society
- Summarize food science in relation to social change and technological advances
- Explain contributions of food science to changing food quality and availability
- Investigate careers in food science, food processing and food production industries

Students will explore scientific practices as they relate to the food industry.

- Demonstrate safe laboratory practices
- Apply skills needed for valid and reliable scientific experiments

Students will investigate physical and chemical changes of food composition.

- Differentiate roles of the three phases of water in food preparation, food processing and food safety, e.g., steaming, freezing, boiling, shocking (ice bath), dehydration
- Investigate changes of macro nutrients in food processing and preparation, e.g., heat applications, varied ingredients
- Investigate changes of micro nutrients in food processing and preparation, e.g., heat applications, solubility

Students will demonstrate food safety and sanitation procedures.

- Practice procedures that minimize the risks of food borne illness
- Differentiate how microorganisms act in food and their effect on food products, e.g., fermentation, molds, probiotics and yeast
- Classify sources of contamination: chemical, physical and biological

Students will use the role of sensory evaluation in the food industry.

- Differentiate sensory characteristics that affect food preferences
- Implement procedures for evaluation of sensory characteristics

Students will investigate technological advances in food science, food processing and food production.

- Distinguish scientific advances that have changed the food supply and preparation, e.g., genetically modified organisms (GMOs), molecular gastronomy
- Investigate use of technology in new food product development

Nutrition and Wellness

[see Human Services pathway]

Nutritional Sciences

[see Human Services pathway]

A cover letter has been drafted to guide business/industry feedback to the standards developed through this process. The thirteen standards documents will be reformatted with three columns for business/industry feedback at the sub-indicator level utilizing a 1 (low) to 5 (high) scale:

- Is the sub-indicator essential?
- Is the sub-indicator clear and specific?
- Is the sub-indicator measurable?

Business/industry partners are also asked if the standards reflect the preparation necessary for a student to enter her/his particular occupational field. A sample of the reformatted document follows.

Course Standards

IFP 1 Students will demonstrate food safety and sanitation procedures.

			Essential 1 (low) – 5 (high)	Clear and Specific 1 (low) – 5 (high)	Measurable 1 (low) – 5 (high)
<i>Webb Level</i>	<i>Sub-indicator</i>	<i>Integrated Content</i>			
Level 2: Skill/Concept	IFP 1.1 Apply established safety rules and guidelines to maintain a safe working environment				
Level 1: Recall & Reproduction	IFP 1.2 Identify proper first-aid procedures for cuts, burns, and electrical shock				
Level 1: Recall & Reproduction	IFP 1.3 Identify health and hygiene best practices for food handling, e.g. handwashing; grooming and hygiene				
Level 1: Recall & Reproduction	IFP 1.4 Identify and apply sanitation rules and regulations				
Level 1: Recall & Reproduction	IFP 1.5 Identify methods that prevent food-borne illnesses and contamination				

Notes

Following business/industry review, state staff will revise the standards documents as necessary to incorporate business/industry suggestions. The revised documents will be shared with participants in the standards development process and, eventually, with teachers of hospitality, tourism & recreation courses throughout the state for their feedback. Final documents will be taken through public hearings and delivered to the State Board of Education for adoption.