

National Curriculum of Pakistan 2026

CULINARY ARTS & FOOD SCIENCE

Grades 9-12



NATIONAL CURRICULUM COUNCIL WING

Ministry of Federal Education &
Professional Training, Islamabad
Government of Pakistan.

Acknowledgement

The National Curriculum Council (NCC) remains committed to strengthening Pakistan’s education system by introducing skill-based, future-oriented curricula that respond to evolving societal needs, health priorities, and workforce demands. In this context, the Culinary Arts and Food Science curriculum has been developed for Grades IX–XII to equip learners with essential life skills, scientific understanding, and professional competencies related to food, nutrition, and hospitality. The curriculum provides a coherent progression from foundational culinary skills at the secondary level—covering kitchen safety, hygiene, basic cooking techniques, nutrition awareness, food culture, and introductory food science—to advanced concepts at the higher secondary level, including menu planning, kitchen management, food microbiology, food technology, nutrition and wellness, international cuisines, culinary innovation, and food entrepreneurship.

A key strength of this curriculum is its applied and practical approach, emphasizing food safety, scientific understanding of food, creativity, teamwork, time management, problem-solving, and cultural appreciation through local and global cuisines. It also integrates contemporary industry practices, including sustainability, food preservation, sensory evaluation, and product development, reflecting global trends in the food and hospitality sectors. The curriculum has been developed through extensive research and collaborative review with curriculum experts, educators, and key stakeholders, ensuring academic rigor and contextual relevance.

The NCC acknowledges the valuable contributions of Dr. Abdul Momin Rizwan Ahmad, National University of Sciences & Technology (NUST), Prof. Dr. Hajra Ahmad (Retd), Allama Iqbal Open University (AIOU), and team members whose expertise enriched the curriculum. It is hoped that it will cultivate responsible, skilled, and socially aware learners capable of contributing meaningfully to the development of Pakistan’s society and economy.

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INTRODUCTION

Culinary Arts and Food Sciences is a progressive subject designed to develop students' practical skills, scientific understanding, and responsible attitudes toward food from Grades IX to XII. The course integrates basic cooking skills, nutrition, food safety, and food science to promote healthy living and informed food choices.

At the secondary level, students learn fundamental cooking methods, safe food handling, kitchen hygiene, use of tools, and recipe reading. As they progress, the course builds understanding of nutrition, food groups, meal planning, and the scientific principles that influence food quality, safety, and nutritive value. Practical work, simple experiments, and culinary labs strengthen both theoretical knowledge and hands-on skills.

At the higher secondary level, students study advanced culinary techniques, food chemistry, menu planning, dietary needs, and professional kitchen practices. The course also introduces sustainability and basic concepts related to food service and entrepreneurship.

The curriculum has been reviewed through a consultative process involving key institutions and curriculum experts to meet the diverse needs of students in Pakistan. The collective contributions of stakeholders have enriched the curriculum, ensuring that it promotes core values such as inclusion, critical thinking, and professional readiness. The curriculum truly representative of national educational aspirations and diverse career pathways. The educational institutions, AIOU, NUST, FBISE and IBCC have contributed in reviewing and refining the curriculum.

RATIONALE

Life Skills and Independence:

- Develop essential life skills such as cooking, meal planning, budgeting, and safe food handling.
- Promote independence, confidence, and responsibility in daily life.

Health and Nutrition Awareness:

- Promote understanding of nutrition, balanced diets, food labels, and healthy eating habits.
- Help address health issues such as malnutrition, obesity, food allergies, and lifestyle-related diseases.

Scientific Understanding of Food:

- Introduce basic principles of biology, chemistry, and physics related to food.
- Explain changes in food during cooking, processing, preservation, and storage.

Food Safety and Hygiene:

- Build awareness of food safety, personal hygiene, and proper food storage.
- Prevent foodborne illnesses and promote public health practices.

Interdisciplinary Learning:

- Integrate knowledge from science, health, mathematics, social studies, and art.
- Apply concepts such as measurement, ratios, budgeting, and cultural studies through real-life food contexts.

Cultural Appreciation and Creativity:

- Encourage respect for cultural diversity through exploration of local and global cuisines.
- Develop creativity through recipe development, presentation, and food innovation.

Career Preparation and Skill Development:

- Prepare students for careers in culinary arts, food technology, nutrition, hospitality, and food safety.
- Build practical skills aligned with workplace requirements.

Entrepreneurship and Economic Awareness:

- Introduce basic concepts of self-employment and food-related businesses.
- Promote entrepreneurial thinking, teamwork, and problem-solving skills.

Sustainability and Global Responsibility:

- Develop awareness of sustainable food systems, ethical sourcing, and environmental impact.
- Encourage responsible food choices in a globalized world.

CROSS CUTTING THEMES

1. Health, Nutrition, and Well-Being

Emphasis on balanced diets, nutrient awareness, digestion, food choices, disease prevention, and promotion of healthy lifestyles across all grades.

2. Food Safety, Hygiene, and Public Health

Continuous focus on personal hygiene, sanitation, safe food handling, storage, foodborne illness prevention, HACCP principles, and microbiological safety.

3. Scientific Literacy and Inquiry

Integration of food chemistry, food microbiology, sensory evaluation, experimentation, observation, and evidence-based reasoning to understand changes in food.

4. Sustainability and Environmental Responsibility

Awareness of sustainable food systems, ethical sourcing, waste reduction, preservation, shelf life, and environmental impact of food production and technology.

5. Cultural Diversity and Global Citizenship

Appreciation of local, national, and international cuisines; respect for cultural, religious, and regional food practices; and understanding globalization of food.

6. Life Skills and Independent Living

Development of practical competencies such as cooking, meal planning, budgeting, time management, teamwork, and responsible decision-making.

7. Entrepreneurship and Economic Awareness

Introduction to food business concepts, menu costing, market research, pricing, branding, and small-scale entrepreneurship in the culinary sector.

8. Creativity, Innovation, and Problem Solving

Encouragement of recipe development, culinary innovation, modern techniques (e.g., molecular gastronomy), plating aesthetics, and product development.

9. **Technology and Digital Awareness**

Use of food technologies, processing and packaging innovations, virtual labs, digital tools for nutrition and planning, and modern culinary practices.

10. **Ethics, Responsibility, and Professional Practice**

Promotion of professionalism, teamwork, workplace ethics, inclusion, safety culture, and responsible conduct in kitchen and food industry settings.

OBJECTIVES

After completion of this course, students are expected to develop knowledge, skills, and competencies across the following areas:

Scientific Basis of Food Preparation:

- Explore the physical and chemical changes that occur during cooking.
- Understand the role of macronutrients and micronutrients in food and nutrition.
- Identify major food groups and explain the importance of a balanced diet for health and energy.

Culinary Arts Principles and Skills:

- Demonstrate safe and proper use of kitchen tools and equipment.
- Learn and apply basic and advanced cooking methods such as boiling, baking, frying, sautéing, steaming, and grilling.
- Plan menus and prepare simple to moderately complex recipes, including Italian, Arabian, Turkish, Chinese, and sub-continental cuisines.
- Understand culinary terminology and kitchen procedures.

Safe and Sanitary Food Handling:

- Apply personal hygiene, cleanliness, and food safety standards in kitchen environments.
- Understand and prevent cross-contamination, practice proper storage, and minimize risk of foodborne illnesses.

Cultural and Global Food Practices:

- Explore foods and cooking styles from different cultures.
- Recognize the role of food in cultural identity, traditions, and celebrations.

Time Management and Teamwork:

- Collaborate effectively during cooking labs and group projects.
- Manage time efficiently to complete tasks within deadlines and kitchen operations.

Creativity, Aesthetic Presentation, and Innovation:

- Apply plating techniques and creative food presentation.
- Experiment with flavors, textures, and colors to create visually appealing and balanced meals.
- Demonstrate innovation and problem-solving in culinary projects.

PROGRESSION GRID (IX- XII)

Domain A:			
Grade IX Foundations of Culinary Arts	Grade X Basic meal plans and nutrition	Grade XI Menu Planning and Costing	Grade XII Specialized Cuisine
<p>Standard: Demonstrate essential culinary skills by applying proper kitchen safety and sanitation practices and performing basic food preparation and cooking techniques.</p>	<p>Standard: Identify essential nutrients and apply basic dietary guidelines to plan simple, balanced meals using appropriate food groups and portion sizes.</p>	<p>Standard: Create nutritionally balanced, culturally appropriate, and budget-friendly menus by calculating food quantities, costs, portion sizes, and dietary requirements.</p>	<p>Standard: Explore specialized cuisines by analyzing their techniques, ingredients, and cultural significance, and demonstrate advanced, authentic, and innovative preparation and presentation skills.</p>
<p>Benchmark-I: Demonstrate foundational culinary skills by following kitchen safety and sanitation practices, correctly identifying and using basic kitchen tools, and applying essential cooking techniques.</p> <p>Benchmark-II: Show practical competence through hands-on food preparation, accurate use of culinary terminology, and successful completion of simple recipes assessed via practical demonstrations and checklists.</p>	<p>Benchmark: Classify food by their nutrient content and explain how each nutrient supports growth, energy, and overall health. They will apply basic meal planning principles using food groups, portion sizes, and dietary guidelines to create balanced daily meal plans that meet general nutritional needs.</p>	<p>Benchmark: Plan nutritionally balanced, culturally appropriate, and budget-conscious menus by selecting suitable ingredients, applying portion control, and calculating basic food costs to meet specific dietary needs and resource constraints.</p>	<p>Benchmark-I: Research and analyze specialized cuisines (gourmet, fusion, regional, and therapeutic) by examining their cultural origins, key ingredients, dietary considerations, and preparation techniques.</p> <p>Benchmark-II: Plan, prepare, and present advanced dishes with professional precision and creativity, demonstrating mastery of flavor balance, presentation, and culturally appropriate culinary practices.</p>

Student Learning Outcomes

<p>[SLO: CF-09-A-01]: Apply standard handwashing and sanitization techniques following OSHA guidelines.</p> <p>[SLO: CF-09-A-02]: Identify at least 10 essential kitchen tools (e.g., chef’s knife, measuring cups) correctly.</p> <p>[SLO: CF-09-A-03]: Use of essential kitchen tools (e.g. cutting and prep tools, mixing and measuring)</p> <p>[SLO: CF-09-A-04]: Prepare a no-cooked dish (e.g., fresh garden salad) while adhering to safety protocols.</p> <p>[SLO: CF-09-A-05]: Demonstrate correct knife handling and basic cuts (e.g., dice, julienne) on vegetables.</p>	<p>[SLO: CF-10-A-01]: Identify the major food groups and their role in maintaining health.</p> <p>[SLO: CF-10-A-02]: Explain the importance of balanced meals in meeting daily nutritional needs.</p> <p>[SLO: CF-10-A-03]: Design a basic meal plan that includes appropriate portions from all essential food groups.</p> <p>[SLO: CF-10-A-04]: Apply principles of nutrition to select foods suitable for different age groups and activity levels.</p>	<p>[SLO: CF-11-A-01]: Understand the importance of nutritionally balanced and culturally appropriate food preparation.</p> <p>[SLO: CF-11-A-02]: Identify and categorize ingredients based on nutritional value, cost, and cultural suitability.</p> <p>[SLO: CF-11-A-03]: Develop a one-day menu plan that meets specific dietary requirements and stays within a given budget.</p> <p>[SLO: CF-11-A-04]: Apply portion control techniques and calculate food cost per serving using basic costing formulas.</p>	<p>[SLO: CF-12-A-01]: Differentiate between gourmet, fusion, regional, and therapeutic cuisines with respect to culture, ingredients, and preparation techniques.</p> <p>[SLO: CF-12-A-02]: Plan and prepare a dish representing a specialized cuisine with accurate flavor profiles, dietary considerations, and cultural relevance.</p> <p>[SLO: CF-12-A-03]: Present an advanced dish using professional plating techniques and evaluate its flavor balance, creativity, and visual appeal.</p>
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Domain B:			
Grade IX Food History and culture	Grade X Food Preparation	Grade XI Kitchen Management	Grade XII Food Technology
<p>Standard: Analyze the historical and cultural development of national cuisines and explain how global eating practices are influenced.</p>	<p>Standard: Apply appropriate cooking methods to preserve food properties and present food attractively while maintaining portion control and overall quality</p>	<p>Standard: Maintain a safe, clean, and efficient kitchen by applying proper workflow, sanitation, and equipment use while demonstrating teamwork, time management, and responsibility.</p>	<p>Standard: Evaluate how technology in food production, processing, and packaging improves safety, shelf life, and sustainability.</p>
<p>Benchmark: Research traditional foods and cooking methods from various cultures and explain how geography, religion, and traditions influence cuisine. They will demonstrate understanding through presentations or preparation of culturally significant dishes.</p>	<p>Benchmark: Prepare and present meals by applying safe, hygienic practices and appropriate cooking techniques that preserve nutritional value and enhance appearance.</p>	<p>Benchmark: Organize and manage kitchen operations by applying principles of hygiene, safety, workflow, and teamwork to ensure efficient, clean, and hazard-free food preparation environments.</p>	<p>Benchmark-I: Analyze food production technologies by examining modern processing, preservation, and packaging methods and their impact on food safety, quality, nutrition, and sustainability.</p> <p>Benchmark-II: Apply basic food technology concepts in practical culinary or food science projects, demonstrating informed use of technology in food preparation, handling, or analysis.</p>

Student Learning Outcomes

<p>[SLO: CF-09-B-01]: Identify traditional foods and cooking techniques from at least three different cultures.</p> <p>[SLO: CF-09-B-02]: Describe geography (climate, agriculture, natural resources) influences the ingredients and cooking methods of various cuisines.</p> <p>[SLO: CF-09-B-03]: Describe geography (climate, agriculture, natural resources) influences the ingredients and cooking methods of various cuisines.</p> <p>[SLO: CF-09-B-04]: Demonstrate the preparation or simulation of a traditional dish while explaining the cultural context behind it.</p>	<p>[SLO: CF-10-B-01]: Identify kitchen hygiene and safety rules for food preparation.</p> <p>[SLO: CF-10-B-02]: Demonstrate correct handling and use of kitchen tools and equipment.</p> <p>[SLO: CF-10-B-03]: Select and apply appropriate cooking methods for different types of food.</p> <p>[SLO: CF-10-B-04]: Explain how cooking methods affect the nutritional value of food.</p> <p>[SLO: CF-10-B-05]: Prepare and plate a dish using safe, hygienic, and attractive presentation techniques.</p>	<p>[SLO: CF-11-B-01]: Understand the principles of kitchen management and operations.</p> <p>[SLO: CF-11-B-02]: Demonstrate correct procedures for personal hygiene, workstation sanitization, and equipment safety.</p> <p>[SLO: CF-11-B-03]: Create a functional kitchen workflow plan that promotes time-efficiency and safety.</p> <p>[SLO: CF-11-B-04]: Participate in group cooking tasks, demonstrating teamwork, time management, and communication skills.</p> <p>[SLO: CF-11-B-05]: Create hazard-free environment for food preparation.</p>	<p>[SLO: CF-12-B-01]: Demonstrate the use of at least one basic food technology (e.g., dehydration, vacuum packing, or sous-vide) in a controlled practical activity or small project.</p> <p>[SLO: CF-12-B-02]: Identify and describe various food processing, preservation, and packaging technologies used in the modern food industry.</p> <p>[SLO: CF-12-B-03]: Analyze the benefits and drawbacks of selected technologies in terms of safety, nutrition, shelf life, and sustainability.</p>
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Domain C:			
Grade IX Basic Cooking Techniques	Grade X Overview of Global Food Cultures	Grade XI Advance Cooking Technique	Grade XII Culinary Innovation
<p>Standard: Apply fundamental cooking methods and explain how each technique affects the properties of food.</p>	<p>Standard: Analyze the diversity of global food cultures and explain how various factors influence traditional cuisines and eating practices worldwide..</p>	<p>Standard: Use advanced cooking techniques with precise timing and control of heat, texture, and flavor to create high-quality, well-presented dishes.</p>	<p>Standard: Innovate in recipe development, ingredient substitution, and modern plating to reinvent traditional dishes while maintaining flavor, nutrition, and visual appeal.</p>
<p>Benchmark-I: Apply fundamental cooking methods (boiling, sautéing, baking, steaming) by accurately following recipes, using appropriate tools, and maintaining kitchen safety, time, and temperature control.</p> <p>Benchmark-II: Evaluate cooked food quality by assessing taste, texture, doneness, and presentation, and explaining how different cooking methods affect food properties and overall quality.</p>	<p>Benchmark: Identify and compare key characteristics of at least three global cuisines, including common ingredients, cooking methods, and cultural significance.</p>	<p>Benchmark: Execute a range of advanced cooking methods with accuracy and consistency, demonstrating control overheat, timing, flavor, and texture to produce well-balanced, visually appealing, and professional presented dishes.</p>	<p>Benchmark-I: Develop innovative culinary creations by researching contemporary food trends, experimenting with ingredients and techniques (e.g., modern cooking methods, molecular gastronomy, artistic plating), and designing original recipes.</p> <p>Benchmark-II: Evaluate culinary innovations by analyzing taste, texture, presentation, nutritional value, and functionality, demonstrating creativity, scientific understanding, and problem-solving skills.</p>

Student Learning Outcomes

[SLO: CF-09-C-01]:

Identify and explain fundamental cooking methods (boiling, sautéing, baking, and steaming).

[SLO: CF-09-C-02]:

Sauté onions and garlic without burning, demonstrating heat control.

[SLO: CF-09-C-03]:

Bake a simple recipe (e.g., muffins) and evaluate doneness using visual/tactile cues.

[SLO: CF-09-C-04]:

Stam and Saute mix vegetable according recipe requirement.

[SLO: CF-10-C-01]:

List common ingredients and staple foods from at least three world cuisines (e.g., Italian, Asian, Mexican).

[SLO: CF-10-C-02]:

Describe traditional cooking methods used in different regions (e.g., steaming in Asia, grilling in the Middle East, saute in Mexico).

[SLO: CF-10-C-03]:

Explain how culture, religion, and geography influence food choices and dietary practices.

[SLO: CF-10-C-04]:

Compare and contrast meal structures and eating habits across selected cultures.

[SLO: CF-10-C-05]:

Create a visual or written presentation showcasing one global cuisine, highlighting its cultural background and key dishes.

[SLO: CF-11-C-01]:

Describe important advanced cooking methods/techniques in local, regional and national food preparation context.

[SLO: CF-11-C-02]:

Apply advanced cooking techniques such as braising, roasting, poaching, or emulsifying in recipe execution.

[SLO: CF-11-C-03]:

Understand importance of required amount of heat for various foods and adjust heat, seasoning, and cooking time to achieve the desired taste, texture, and visual appeal.

Present completed dishes with attention to plating, garnishing, and portion control.

[SLO: CF-12-C-01]:

Develop and document an original or modified recipe incorporating innovative cooking techniques or ingredient substitutions.

[SLO: CF-12-C-02]:

Apply modern culinary methods such as foams, spherification, or deconstruction to enhance texture and visual impact.

[SLO: CF-12-C-03]:

Evaluate the final dish for taste, texture, nutrition, creativity, and adherence to current food trends.

Domain D:			
Grade IX Introduction to Food Components	Grade X Introduction to sensory evaluation	Grade XI Food Microbiology	Grade XII Food Product Development
<p>Standard: Identify the major food components and describe their basic functions in the body.</p>	<p>Standard: Observe and describe the characteristics of different foods and develop sensory vocabulary.</p>	<p>Standard: Identify foodborne microorganisms, understand their role in spoilage and illness, and prevent their growth through proper handling, storage, and temperature control.</p>	<p>Standard: Develop new food products from concept to creation to design innovative, safe, and appealing items.</p>
<p>Benchmark: Classify the food based primary nutrient content and explain how each nutrient supports body function. They will demonstrate understanding by analyzing ingredients in simple meals and discussing their nutritional roles.</p>	<p>Benchmark: Evaluate a variety of fs using their five senses sight, smell, taste, touch, and hearing, describe sensory attributes such as flavor, texture, aroma, and appearance and use basic sensory tools (e.g., tasting charts or checklists) and sensory vocabulary to express preferences and identify quality differences in simple food item.</p>	<p>Benchmark: Understand the role of microorganisms in food production, spoilage, and safety. Also differentiate between beneficial and harmful microbes, describe the conditions that support microbial growth, and apply safe food handling practices to prevent contamination and foodborne illness.</p>	<p>Benchmark: Design and develop an original food product by applying culinary creativity, nutritional knowledge, and food science principles. They will conduct market research, prototype development, sensory evaluation, and packaging design, demonstrating the ability to innovate, test, and present a product that meets safety standards and consumer expectations.</p>

Student Learning Outcomes

<p>[SLO: CF-09-D-01]: Identify the six major nutrients: carbohydrates, proteins, fats, vitamins, minerals, and water.</p> <p>[SLO: CF-09-D-02]: Classify common foods according to their primary nutrient content (e.g., rice as carbohydrate, meat as protein).</p> <p>[SLO: CF-09-D-03]: Describe the role of each nutrient in supporting body functions (e.g., carbohydrates for energy, proteins for growth and repair).</p> <p>[SLO: CF-09-D-04]: Analyze the ingredients in simple meals (e.g., sandwich, salad, or rice with curry) to determine their nutritional components.</p> <p>[SLO: CF-09-D-05]: Evaluate whether a given meal is nutritionally balanced and suggest improvements if needed.</p>	<p>[SLO: CF-10-D-01]: Recognize variety of foods from different regions using five senses.</p> <p>[SLO: CF-10-D-02]: Differentiate among variety of foods for their taste, smell and nutrient value</p> <p>[SLO: CF-10-D-03]: Categorize ingredients in a meal (e.g., chicken, rice, broccoli) by macronutrients.</p> <p>[SLO: CF-10-D-04]: Discuss the importance of vitamins (e.g., Vitamin C for immunity) using real-world examples.</p> <p>[SLO: CF-10-D-05]: Describe sensory attributes such as flavor, texture, aroma and appearance etc.</p> <p>[SLO: CF-10-D-06]: Design a balanced snack combining carbs, protein, and healthy fats.</p>	<p>[SLO: CF-11-D-01]: Discuss the role of microorganisms in food production, spoilage, and safety.</p> <p>[SLO: CF-11-D-02]: Distinguish between spoilage-causing microbes, pathogenic microorganisms, and beneficial cultures (e.g., yeast, probiotics).</p> <p>[SLO: CF-11-D-03]: Explain the temperature danger zone and the environmental conditions that promote microbial growth affecting food.</p> <p>[SLO: CF-11-D-04]: Apply HACCP-based food safety procedures to prevent cross-contamination and ensure safe storage, cooking, and handling.</p> <p>[SLO: CF-11-D-05]: Recognize food borne illness and take precautionary measures while preparing foods.</p>	<p>[SLO: CF-12-D-01]: Conduct basic market research to identify consumer preferences or product gaps in the culinary sector.</p> <p>[SLO: CF-12-D-02]: Develop and test a new food product prototype using appropriate ingredients and food science techniques.</p> <p>[SLO: CF-12-D-03]: Evaluate the prototype through sensory testing and present it with appropriate labeling and packaging design.</p>
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Domain E:			
Grade IX Basics of food chemistry	Grade IX Food Safety	Grade XI Nutrition and Wellness	Grade XII Food Entrepreneurship
<p>Standard-I:</p> <p>Explain the basic chemical makeup of food and identify how physical and chemical changes occur during cooking.</p>	<p>Standard:</p> <p>Understand the principles of food safety and apply safe practices in handling, storing, and preparing food.</p>	<p>Standard:</p> <p>Understand essential nutrients and their role in health and apply nutrition principles to make informed food choices that support well-being and a balanced lifestyle.</p>	<p>Standard:</p> <p>Learn the fundamentals of starting and managing a food business by applying entrepreneurial skills to develop business plans and manage financial and operational aspects.</p>
<p>Benchmark-I:</p> <p>Identify major food components (carbohydrates, proteins, and fats) and explain how heat, pH, and moisture affect their behavior during cooking.</p> <p>Benchmark-II:</p> <p>Observe and explain food chemistry changes by describing physical and chemical reactions (e.g., browning, coagulation, gelatinization) through simple cooking experiments and recipe applications.</p>	<p>Benchmark-I:</p> <p>Identify common causes of food contamination, explain methods to prevent foodborne illnesses, and demonstrate correct procedures for food handling, storage, and preparation in classroom or home settings.</p>	<p>Benchmark:</p> <p>Analyze the functions of essential nutrients in the body and evaluate how dietary choices impact long-term health and wellness. Also apply nutrition guidelines to create balanced meal plans that support energy needs, disease prevention, and overall physical and mental well-being.</p>	<p>Benchmark:</p> <p>Develop and present a comprehensive food business concept by applying entrepreneurial principles, including product development, target market analysis, budgeting, pricing, and marketing strategies. They will demonstrate an understanding of operational planning, food safety regulations, and sustainability, preparing them for future ventures in the culinary and hospitality industries.</p>

Student Learning Outcomes

[SLO: CF-09-E-01]:

Identify the basic chemical components of food (e.g., carbohydrates, proteins, fats, water).

[SLO: CF-09-E-02]:

Explain how heat causes physical and chemical changes in food (e.g., gelatinization, caramelization, protein denaturation).

[SLO: CF-09-E-03]:

Describe the effects of air (oxidation, aeration) on food properties during preparation and storage.

[SLO: CF-09-E-04]:

Recognize how pH levels affect food texture, color, and reactions (e.g., curdling, leavening), common reactions such as browning (Maillard reaction, caramelization), melting (fat, sugar), and thickening (starch gelatinization, protein coagulation) in cooking.

[SLO: CF-10-E-1]:

Students will be able to differentiate between biological, chemical, and physical hazards that can contaminate food.

[SLO: CF-10-E-2]:

Students will be able to demonstrate proper food handling techniques, such as hand washing, utensil sanitation, and avoiding cross-contamination.

[SLO: CF-10-E-3]:

Students will be able to explain safe food storage practices, including correct refrigeration, freezing, and labeling.

[SLO: CF-10-E-4]:

Students will be able to analyze real-life scenarios of foodborne illness outbreaks and suggest preventive measures.

[SLO: CF-11-E-01]:

Identify essential nutrients for a human body and importance of balanced approach in using these in foods.

[SLO: CF-11-E-02]:

Describe the role of essential nutrients (carbohydrates, proteins, fats, vitamins, minerals, water) in body function and health.

[SLO: CF-11-E-03]:

Analyze a sample diet for nutritional adequacy and recommend improvements based on dietary guidelines.

[SLO: CF-11-E-04]:

Design a weekly meal plan that promotes wellness, supports lifestyle goals (e.g., weight control, energy balance), and considers disease prevention.

[SLO: CF-12-E-01]:

Create a food business plan that includes a business concept, target market profile, and menu or product line.

[SLO: CF-12-E-02]:

Estimate operational costs and develop a pricing model for the product or service.

[SLO: CF-12-E-03]:

Design and present a basic marketing strategy using visual branding and promotional tools.

Domain F:			
Grade IX Nutrients and Digestion	Grade X Food preservation and storage	Grade XI International Cuisines	Grade XII Culinary Project
Standard: Identify the major nutrients and explain their roles in health, and describe the basic steps of digestion and nutrient absorption.	Standard: Elaborate on the purpose of food preservation with common methods.	Standard: Explore international culinary traditions, ingredients, and methods, and prepare culturally authentic dishes while understanding their historical and regional influences.	Standard: Execute a comprehensive culinary project showcasing advanced cooking techniques, food presentation, and menu planning, while demonstrating creativity, organization, and professionalism..
Benchmark-I: Classify foods based on their primary nutrient content and explain how each nutrient supports body function. Also demonstrate understanding by labeling parts of the digestive system and describing how nutrients are broken down and absorbed.	Benchmark-I: Explain the importance of food preservation in extending shelf life and preventing spoilage. Also identify and describe common preservation methods such as refrigeration, freezing, drying, and sealing, and demonstrate proper storage techniques by organizing food based on perish ability, temperature requirements, and safety guidelines.	Benchmark-I: Research and analyze the cultural, historical, and geographical influences on major international cuisines. Demonstrate skills in preparing and presenting authentic dishes from diverse regions, using traditional ingredients and techniques, while respecting cultural significance and dietary practices	Benchmark-I: Plan, execute, and present an advanced culinary project that incorporates menu development, ingredient selection, budgeting, food preparation, and presentation. They will demonstrate mastery of culinary techniques, time management, teamwork, and problem-solving, while reflecting on the process and evaluating the final outcome based on flavor, nutrition, aesthetics, and overall execution.

Student Learning Outcomes

<p>[SLO: CF-09-F-01]: Identify and name the six major nutrients: carbohydrates, proteins, fats, vitamins, minerals, and water.</p> <p>[SLO: CF-09-F-02]: Describe the basic steps of the human digestive process from ingestion to elimination.</p> <p>[SLO: CF-09-F-03]: Explain how the body breaks down carbohydrates, proteins, and fats during digestion.</p>	<p>[SLO: CF-10-F-1]: Understand the importance of food preservation in religious teachings as well as social and economic context.</p> <p>[SLO: CF-10-F-2]: Describe food preservation method in traditional home settings as well as in technological arena.</p> <p>[SLO: CF-10-F-3]: Compare shelf life of fresh vs. frozen berries through a 2-week observation log.</p> <p>[SLO: CF-10-F-4]: Preserve herbs using two methods (drying vs. vacuum-sealing) and evaluate which retains flavor best.</p> <p>[SLO: CF-10-F-5]: Organize a mock refrigerator to minimize cross-contamination (e.g., raw meat on the bottom shelf).</p>	<p>[SLO: CF-11-F-01]: Identify the staple ingredients, traditional dishes, and cooking methods associated with key international cuisines (e.g., Italian, Thai, Middle Eastern).</p> <p>[SLO: CF-11-F-02]: Explain how history, geography, and cultural practices influence food choices and meal customs in different regions.</p> <p>[SLO: CF-11-F-03]: Prepare and present a culturally significant dish using authentic techniques, while explaining its origin and dietary relevance.</p>	<p>[SLO: CF-12-E-01]: Develop a full menu plan with recipes, portion sizes, costing, and procurement lists.</p> <p>[SLO: CF-12-E-02]: Prepare and present a multi-component meal or culinary showcase in a timed group setting.</p> <p>[SLO: CF-12-E-03]: Reflect on the execution process, highlighting challenges faced, teamwork applied, and evaluation of the final dish in terms of flavor, presentation, and nutrition.</p>
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TEACHING AND LEARNING STRATEGIES

The teaching and learning strategies are designed to support students' progressive development from foundational skills to advanced culinary, scientific, cultural, and entrepreneurial competencies. Strategies are grouped thematically and can be adapted according to grade level and complexity.

1. Active and Hands-On Learning

- **Demonstration & Practice:** Teacher-led demonstrations of basic and advanced cooking methods, knife skills, plating, and food safety, followed by supervised student practice.
- **Practical Labs:** Engage students in cooking, meal preparation, sensory evaluation, and nutrition labs (e.g., blind taste tests, My Plate meal planning challenges).
- **Experiments and Science Integration:** Conduct experiments related to food chemistry, pH changes, fermentation, preservation, and hygiene to reinforce scientific concepts and critical thinking.
- **Project-Based Learning:** Students apply skills in menu planning, recipe adaptation, and small- or large-scale food preparation.

2. Collaborative Learning

- **Group Projects:** Assign tasks such as cultural dish showcases, menu design challenges, and meal planning projects to foster teamwork, leadership, and communication skills.
- **Peer Evaluation:** Encourage students to critique each other's work (taste, texture, presentation) to develop constructive feedback and critical thinking.
- **Stations Rotation:** Small groups rotate through cooking, plating, hygiene, and food safety stations to enhance practical skill acquisition.

3. Cultural and Global Awareness

- **Cultural Immersion Activities:** Invite guest chefs, parents, or community members to demonstrate traditional dishes from local, sub-continental, and international cuisines.
- **Discussion and Debates:** Explore topics such as global food systems, sustainability, and cultural significance of food to foster awareness and analytical thinking.
- **Exploring Global Cuisines:** Encourage students to study, cook, and present dishes from various cultures to promote cultural appreciation.

4. Technology Integration

- **Virtual Lab Simulations:** Use scenarios such as cross-contamination, kitchen safety, or food preservation simulations.
- **Digital Nutrition and Meal Planning Tools:** Integrate apps and online platforms (e.g., MyPlate trackers, digital recipe planners) for assignments.
- **Research and Presentations:** Students use multimedia tools to research global cuisines, food trends, health guidelines, and present findings.
- **Hygiene Visualization:** Utilize UV light and other technologies to demonstrate handwashing effectiveness and sanitation.

5. Demonstrations, Modelling, and Role-Play

- **Teacher Modeling:** Demonstrate proper techniques before student practice (e.g., food handling, preservation, plating).

- **Role-Play Activities:** Simulate dining etiquette, customer service, or kitchen management scenarios to integrate soft skills.
- **Step-by-Step Guidance:** Scaffold learning for complex techniques in advanced grades.

6. Critical Thinking, Creativity, and Problem-Solving

- **Innovation in Culinary Projects:** Encourage experimentation with flavors, textures, presentation, and fusion cuisine.
- **Scenario Analysis:** Challenge students with food safety, nutritional, or menu planning dilemmas to apply knowledge practically.
- **Sustainability and Entrepreneurial Thinking:** Assign tasks related to food sourcing, business planning, and small-scale food entrepreneurship.

GRADE WISE DISTRIBUTION OF TIME AND WEIGHTAGE%

Grade IX

Unit #	Unit Title	Number of SLOs	Number of Periods	Periods (40 min each)		Weightage %age
				Theory	Practical	
1	Domain A: Foundations of Culinary Arts	05	28	12	16	17.5%
2	Domain A: Food History and Culture	03	25	9	16	15.6%
3	Domain B: Basic Cooking Techniques	04	27	11	16	16.9%
4	Domain C: Introduction to Food Components	05	28	12	16	17.5%
5	Domain C: Basics of Food Chemistry	04	27	11	16	16.9%
6	Domain D: Nutrients and Digestion	03	25	9	16	15.6%
7	Total Number of SLOs/Periods	24	160	64	96	100%

(5 periods per week i.e. days per week × weeks per month × number of months = 5 × 4 × 8 = 160 approx.)

Grade X

Unit #	Unit Title	Number of SLOs	Number of Periods	Periods (40 min each)		Weightage %age
				Theory	Practical	
1	Domain A: Overview of Global Food Cultures	05	27	11	16	16.9%
2	Domain B: Food Preparation	05	27	11	16	16.9%
3	Domain C: Introduction to Sensory Evaluation	06	30	12	18	18.8%
4	Domain C: Food Safety	04	24	9	15	15%
5	Domain C: Food Preservation and Storage	05	27	11	16	16.9%
6	Domain D: Basic Meal Plans and Nutrition	04	25	10	15	15.6%
Total Number of SLOs/Periods		29	160	64	96	~100%

(5 periods per week i.e. days per week × weeks per month × number of months = 5 × 4 × 8 = 160 approx.)

Grade XI

Unit #	Unit Title	Number of SLOs	Number of Periods	Periods (40 min each)		Weightage %age
				Theory	Practical	
1	Domain A: International Cuisines	03	34	14	20	15.18%
2	Domain B: Advance Cooking Techniques	04	38	15	23	16.96%
3	Domain C: Food Microbiology	05	39	16	23	17.41%
4	Domain D: Nutrition and Wellness	04	38	15	23	16.96%
5	Domain E: Menu Planning and Costing	04	38	15	23	16.96%
6	Domain E: Kitchen Management	05	37	15	22	16.52%
Total Number of SLOs/Periods		25	224	90	134	~100%

(8 periods per week i.e. days per week × weeks per month × number of months = 8 × 4 × 7 = 224 approx.)

Grade XII

Unit #	Unit Title	Number of SLOs	Number of Periods	Periods (40 min each)		Weightage %age
1	Domain A: Specialized Cuisine	03	37	15	22	16.52%
2	Domain B: Culinary Innovation	03	37	15	22	16.52%
3	Domain C: Food Technology	03	37	15	22	16.52%
4	Domain C: Food Product Development	03	37	15	22	16.52%
5	Domain E: Food Entrepreneurship	03	37	15	22	16.52%
6	Domain E: Culinary Project	03	39	15	24	17.40%
Total Number of SLOs/Periods		18	224	90	134	~100%

(8 periods per week i.e. $\text{days per week} \times \text{weeks per month} \times \text{number of months} = 8 \times 4 \times 7 = 224$ approx.)

ASSESSMENT AND EVALUATION

Formative Assessments

- Skill checklists: knife handling, hygiene, cooking techniques.
- Sensory journals and logs: taste, texture, presentation reflections.
- Peer and self-assessment: feedback on group projects and hygiene checklists.
- Teacher observations: practical skills, teamwork, time management.

Summative Assessments

- **Practical Exams:** Complete meals, cultural dishes, product development, and plating evaluations.
- **Written Assessments:** Quizzes, tests, case studies on food science, nutrition, food safety, and entrepreneurship.
- **Project-Based Assessments:** Menu planning, research projects, culinary events, and MyPlate-compliant meal plans.
- **Chapter-End Evaluations:** Exercises, quizzes, and scenario-based problem-solving.

Rubrics and Criteria

- Accuracy in ingredient measurement and nutrient categorization.
- Creativity, balance, and aesthetics in food preparation and plating.
- Depth of cultural and scientific analysis in projects.
- Application of hygiene, safety, and kitchen management principles.
- Critical thinking, problem-solving, and innovation.

1. Practical Assessments (60%)

- Hands-on cooking practical assessed on technique, safety, hygiene, time management, and presentation.
- Final culinary project or event showcasing a complete menu or food product.
- Product development trials, taste tests, and plating evaluations.

2. Written Assessments (40%)

- Quizzes and tests on food science, nutrition, entrepreneurship, and safety regulations.
- Written reflections on lab experiences and culinary innovations.
- Case study responses and scenario-based analysis.

Grade-Level Focus

- **Grades 9–10:** Foundational skills, basic cooking methods, hygiene, nutrition, and cultural awareness.
- **Grades 11–12:** Advanced culinary techniques, specialized cuisines, food chemistry, microbiology, menu costing, kitchen management, entrepreneurship, research-based projects, and professional-level culinary planning.

GUIDELINES FOR TEACHERS

1. Safety First

- Enforce hygiene: hand washing, hair restraints, aprons, closed shoes.
- Supervise knives, stoves, ovens, and heat sources.
- Conduct monthly fire/drill simulations; maintain a first aid kit.
- Prevent cross-contamination and ensure proper food storage.

2. Inclusivity & Differentiation

- Adapt recipes for dietary restrictions: vegetarian, halal, gluten-free, allergies.
- Support all learning styles: visual (videos), auditory (discussions), kinesthetic (hands-on labs).
- Provide flexible tasks based on student skill levels.

3. Curriculum Implementation

- Align lessons with national curriculum and grade outcomes.
- Balance culinary arts and food science concepts; build progressively from basics to advanced skills.
- Use seasonal/culturally relevant ingredients; integrate cross-curricular links (biology, chemistry, geography).

4. Lesson & Kitchen Planning

- Prepare daily/weekly plans with objectives, materials, safety protocols, and assessments.
- Assign roles: chef, prep cook, sanitation manager, timekeeper.
- Maintain clean, functional equipment and manage ingredient inventory efficiently.

5. Teaching & Learning Strategies

- Active learning: demos, labs, sensory evaluation, project-based tasks.
- Collaborative learning: group projects, peer assessment, rotations, role-play.
- Cultural/global awareness: guest chefs, cuisine showcases, sustainability discussions.
- Technology: virtual labs, nutrition apps, digital research.
- Encourage creativity: menu innovation, plating, recipe experimentation.

6. Assessment & Feedback

- Formative: observations, peer/self-assessment, journals, skill checklists.
- Summative: practical exams, projects, menu planning, sensory evaluation.
- Provide constructive feedback on skills, teamwork, and critical thinking.

7. Professionalism & Career Awareness

- Model proper kitchen behavior, hygiene, teamwork, and ethics.
- Discuss career pathways and entrepreneurship in food industries.
- Encourage sustainability, nutrition awareness, and responsibility in kitchen practices.

8. Reflective Practice

- Maintain records of lessons; seek student feedback.
- Adjust teaching methods based on outcomes.
- Engage in professional development for updated culinary trends and pedagogy.

GUIDELINES FOR AUTHORS

The Authors must be vigilant in developing study material, since it is a bridging stage, where children and parents are making up their minds for future career/ profession. We have divided these guidelines into general and subject specific.

1. General:

- **Relevance:** The writers must ensure that the content is relevant to the students' interests and curriculum requirements.
- **Accuracy:** Verify the accuracy of information, facts, and data being quoted. Give reference wherever applicable.
- **Depth and Breadth:** Strike a balance between depth and breadth of contents, aligning with curriculum standards.
- **Real-Life Examples:** Try to incorporate real-life examples and case studies to illustrate concepts.

2. Writing Style: The writing style must be:

- **Clear and Concise:** Use clear, concise language, avoiding jargon and technical terms unless necessary.
- **Engaging:** Make the content engaging, interactive, and thought-provoking.
- **Organized:** Organize the content logically, using headings, subheadings, and bullet points.

3. Visual Aids:

- Incorporate relevant images, diagrams, and charts to illustrate concepts. These are more comprehensible than a simple text.
- Use clear captions and labels for visual aids.
- Consult Experts with subject matter experts and educators.
- Stay updated with curriculum changes, industry trends, and developments.
- Align the content with curriculum standards and learning objectives.
- Encourage feedback from students, teachers, and peers.

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NOTIFICATION

No. F.1-2/2025(NCC) In exercise of the powers conferred under the Federal Supervision of Curricula, Textbooks and Maintenance of Standards of Education Act, 1976 Section 3 (2) (a), the Competent Authority i.e. Director, NCC Wing, M/o FE&PT has approved the Curriculum "**Culinary Art & Food Science**" for Grades IX-XII. The curriculum will be implemented as elective subject in all Public and Private Educational Institutions of Islamabad Capital Territory (ICT) and the educational institutions under Federal Government across the country w.e.f academic year 2026-27. This elective curriculum is available at ncc.gov.pk


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