

Chemical Services

Course Credit	1.0
Grade Levels	9-12
Prerequisites	Cosmetology Fundamentals OR Barbering Fundamentals

Chemical Services is designed to enable students to perform various chemical texturing services, including relaxers, permanent waves, straighteners, and soft curls, in a safe and effective manner. Emphasis is placed on sanitation, client safety, chemical composition of the hair, scalp disorders and treatments, and effects of chemical applications on the hair and scalp.

Career and technical student organizations are integral, co-curricular components of each career and technical education course. These organizations enhance classroom instruction while helping students develop leadership abilities, expand workplace-readiness skills, and access opportunities for personal and professional growth. Students in the Cosmetology and Barbering program affiliate with SkillsUSA.

Foundational standards, shown in the table below, are an important part of every course. Through these standards, students learn and apply safety concepts; explore career opportunities and requirements; practice the skills needed to succeed in the workplace; take advantage of leadership, teamwork, and personal growth opportunities afforded by Career and Technical Student Organizations; and learn and practice essential digital skills. The foundational standards are to be incorporated throughout the course.

Each foundational standard completes the stem “*Students will...*”

Foundational Standards

1. Incorporate safety procedures in handling, operating, and maintaining tools and machinery; handling materials; utilizing personal protective equipment; maintaining a safe work area; and handling hazardous materials and forces.
2. Demonstrate effective workplace and employability skills, including communication, awareness of diversity, positive work ethic, problem-solving, time management, and teamwork.
3. Explore the range of careers available in the field and investigate their educational requirements and demonstrate job-seeking skills including resume-writing and interviewing.

4. Advocate and practice safe, legal, responsible, and ethical use of information and technology tools specific to the industry pathway.
5. Participate in a Career and Technical Student Organization (CTSO) to increase knowledge and skills and to enhance leadership and teamwork.
6. Demonstrate knowledge of current trends in the industry.
7. Explain and practice the concepts related to personal hygiene, physical poise, professional dress, and workplace ethics related to professions within the industry.

CHEMICAL SERVICES CONTENT STANDARDS

Please refer to “Directions for Interpreting Standards” on page 10

Each content standard completes the stem “*Students will...*”

Safety and Infection Control in Chemical Services

1. Apply chemicals, including corrosives and oxidizers, according to industry safety standards.
Example: checking manufacturers instructions in safety data sheets for accurate and detailed information
2. Explain and perform client safety procedures for all chemical services, including infection control and scalp and hair analysis.
Examples: client consultation, appropriate texture services, shampoo methods

Chemical Composition of the Hair and Scalp

3. Analyze and interpret data on chemical structure and composition of the hair and scalp, including polypeptide chains, side bonds, hydrogen bonds, salt bonds, and disulfide bonds, and how they are affected by various chemical services.
4. Explain how changes in the components of a system activate the release or absorption of energy from a system, indicating how these processes take place in chemical services for hair.

Scalp Disorders and Treatments

- a. Develop a model to illustrate how the changes in total bond energy determine whether a chemical reaction is endothermic or exothermic.
 - b. Demonstrate the transfer of thermal energy in a closed system.
Example: Perform an exothermic and an endothermic permanent wave.
5. Identify the factors that affect the rate of a chemical reduction reaction and indicate the effects of each factor.
Examples: temperature, mixing, concentration, particle size, surface area, catalyst
6. Obtain, evaluate, and communicate information concerning the relationship of hydrogen ion concentrations to the pH scale, and to acids, bases, and neutral solutions.
 - a. Test various acids and bases to assess pH levels to determine which chemicals are safe for use on hair and scalp.
Examples: vinegar, baking soda, soap, citrus juice
 - b. Research and develop time frames for the safe application of chemicals on the hair and scalp.
7. Compare and contrast various pure substances, elements, compounds, and mixtures.
Examples: solutions, suspensions, emulsions
8. Demonstrate procedures of hair and scalp analysis to make informed judgments about chemical services.
9. Explore and evaluate the factors that affect product choice and eligibility for chemical hair services.
Examples: porosity, texture, density, elasticity
10. Distinguish between scalp disorders and diseases that can be treated in the salon and those that must be treated by a physician.
11. Research and design treatment plans for various scalp conditions and hair loss treatable by hair care professionals.
Examples: scalp massage; dry, normal, oily, and dandruff scalp conditions

Chemical Applications

12. Compare types of chemical texture products and services in the cosmetology and barbering industry.
Examples: permanent waving, chemical relaxing, soft curl perm, chemical straightening
13. Analyze and interpret the changes that take place in the hair structure when using different chemicals.
Examples: cysteamine bonds, lanthionization
14. Perform various chemical service applications, including permanent waving, chemical relaxing, and straightening techniques.
15. Determine and recommend products for at-home maintenance of chemically treated hair.