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CIP CODE: 12.0410
SEMESTER: Departmental Syllabus
COURSE TITLE: Scientific Concepts
COURSE NUMBER: NAIL0101
CREDIT HOURS: 3
INSTRUCTOR: Departmental Syllabus
OFFICE LOCATION: Departmental Syllabus
OFFICE HOURS: Departmental Syllabus
TELEPHONE: Departmental Syllabus
EMAIL: KCKCC issued email accounts are the official means for electronically communicating with our students.

PREREQUISITES: Meet requirements to apply for Kansas Board of Cosmetology Apprentice License

REQUIRED TEXT AND MATERIALS: Please check with the KCKCC bookstore, http://www.kckccbookstore.com/, for the required texts for your particular class.

COURSE DESCRIPTION: This course will provide the student with a practical knowledge of public sanitation and an understanding of the general concepts of chemistry, the chemical composition of professional nail products, chemical safety and OSHA regulations applicable in the professional beauty industry. The student will be provided with an understanding of basic anatomy, physiology and histology of the human body. This course will also provide the student with a working knowledge of the structure, composition, growth, regeneration, irregularities, and diseases of the natural nail and the structure, functions, growth, regeneration and disorders of the skin as well as an understanding of the muscles, nerves and blood, their structure and function.

METHOD OF INSTRUCTION: A variety of instructional methods may be used depending on content area. These may include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, and panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE:
I. Nail Salon Ecology
   A. Microbiology
   B. Infection control
   C. Safety and first aid
II. Anatomy
   A. Building blocks of human anatomy
   B. Basic body systems
III. Chemistry
   A. Fundamentals of Chemistry
   B. Chemistry of nail products
   C. Chemistry of artificial nail systems

IV. Nail and skin physiology
   A. Nail physiology
   B. Skin physiology

EXPECTED LEARNER OUTCOMES:
A. Recognize the structure and function of bacteria and viruses by types, classifications, growth and reproduction patterns and relationship to the spread of infection.
B. Describe the three levels of infection control and explain the procedures and precautions for each level.
C. Identify two regulating agencies that enforce safety and health standards in the workplace and describe their specific functions.
D. Explain how infection control equipment works to prevent cross-contamination.
E. Describe basic electrical and chemical safety precautions when working in the nail salon or spa.
F. Identify the symptoms and effects of overexposure.
G. List simple safety and first-aid applications for cuts, minor burns, choking, fainting and eye injury.
H. Explain the relationship and function of cells, tissues and primary organs within the human body.
I. Identify the structure and function of the ten major body systems.
J. Describe the three basic forms of matter and the differences between elements, atoms, molecules and compounds.
K. Explain how initiators and catalysts cause polymerization.
L. Name the common uses of solvents in the nail industry.
M. List the different ingredients that make up nail polish.
N. Explain how a nail plate and a nail product are able to adhere to each other.
O. Describe how monomers and polymers relate to each other.
P. Compare the differences of the three artificial nail systems.
Q. Describe the structure of the nail.
R. Identify and describe common nail diseases and disorders.
S. List the six primary functions of the skin.
T. Describe the basic physiology of the skin.
U. Recognize common diseases and disorders of the skin.

COURSE COMPETENCIES:
Recognize the structure and function of bacteria and viruses by types, classifications, growth and reproduction patterns and relationship to the spread of infection.
1. The learner will define the 2 classifications of bacteria.
2. The learner will describe the structure and function of the 3 types of pathogenic bacteria.
3. The learner will identify the stages of growth and reproduction of bacteria.
4. The learner will define viruses in general and specifically HIV, HBV, AIDS and tuberculosis.
5. The learner will define external parasites and identify 3 external parasites that cause disease.
6. The learner will define infection and identify the common means of spreading infection in a salon.
7. The learner will define and identify the 2 types of infection.
8. The learner will define immunity, and identify the 2 types of immunity.

Describe the 3 levels of infection control and explain the procedures and precautions for each level.
9. The learner will define and demonstrate infection control, decontamination, sanitation, disinfection and sterilization.
10. The learner will define antiseptics and disinfectants and identify the differences.
11. The learner will understand and demonstrate universal precautions, proper handwashing and blood spill procedures.
12. The learner will describe OSHA’s bloodborne pathogen standard.
Identify two regulating agencies that enforce safety and health standards in the workplace and describe their specific functions.

16. The learner will understand the purpose and function of OSHA and EPA.
17. The learner will understand the purpose and function of MSDS.

Explain how infection control equipment works to prevent cross-contamination.

18. The learner will define iodophor germicidal detergent solution, phenolic germicidal detergent solution, ethyl alcohol, isopropyl alcohol, stabilized hydrogen peroxide, quaternary ammonium germicidal detergent solution, glutaraldehyde based formulations, sodium hypochlorite, demand-release chlorine dioxide, heat sterilization and ethylene oxide gas.
19. The learner will describe and understand the purpose and function of an autoclave, chemiclave and UV light sterilizer.

Describe basic electrical and chemical safety precautions when working in the nail salon or spa.

20. The learner will describe and demonstrate electrical outlet, cord and plug inspection procedure.
21. The learner will describe and demonstrate precautions for electrical appliance use near water source.
22. The learner will understand the purpose and function of UL.
23. The learner will describe acceptable ventilation methods for working with artificial nail products.
24. The learner will describe acceptable disposal methods for hazardous chemicals.
25. The learner will identify at least five safety precautions that must be followed when working with artificial nail products.

Identify the symptoms and effects of overexposure.

26. The learner will define overexposure and identify the symptoms associated with overexposure.
27. The learner will define sensitivity, inflammation, contact dermatitis, and allergic reaction.
28. The learner will describe the techniques necessary to avoid overexposure.
29. The learner will describe and demonstrate the state approved procedure for blood spills.

List simple safety and first-aid applications for cuts, minor burns, choking, fainting and eye injury.

30. The learner will describe and demonstrate first aid procedure for first-degree burns, second-degree burns, and third-degree burns.
31. The learner will describe and demonstrate first aid procedure for chemical burns, heat burns and electrical burns.
32. The learner will describe and demonstrate first aid for choking – Heimlich Maneuver.
33. The learner will describe and demonstrate first aid for fainting.
34. The learner will describe and demonstrate first aid for eye injuries.

Explain the relationship and function of cells, tissues and primary organs within the human body.

35. The learner will define anatomy, physiology and histology.
36. The learner will identify the four building blocks of the human body.
37. The learner will define cell, nucleus, cytoplasm and cell membrane.
38. The learner will define tissues and identify the 5 tissue types and understand their purpose and function.
39. The learner will define organ and identify and understand the purpose and function of the brain, the eyes, the heart, the lungs, the stomach, the intestines, the liver, the kidneys, and the skin.

Identify the structure and function of the ten major body systems.

40. The learner will define body systems and identify and understand the purpose and function of the 10 major body systems.
41. The learner will identify and understand the purpose and function of the skeletal system.
42. The learner will identify and understand the purpose and function of the muscular system.
43. The learner will identify and understand the purpose and function of the cardiovascular system and the lymph vascular system.
44. The learner will define the nervous system, neurology, cerebrospinal nervous system, peripheral nervous system and the autonomic nervous system.
45. The learner will define and describe the function of the digestive system.
46. The learner will define and describe the function of the excretory system.
47. The learner will define and describe the function of the respiratory system, inhalation and exhalation.
48. The learner will define and describe the function of the endocrine system.
49. The learner will define and describe the function of the reproductive system.
50. The learner will define and describe the function of the integumentary system.

Describe the three basic forms of matter and the differences between elements, atoms, molecules and compounds.

51. The learner will define matter and identify the three basic forms of matter.
52. The learner will describe a physical change, a chemical change and the difference between them.
53. The learner will define elements, atoms, molecules and compounds, and identify the common elements found in nails.
54. The learner will describe and demonstrate a chemical reaction.

Explain how initiators and catalysts cause polymerization.

55. The learner will describe and demonstrate polymerization, and define initiator catalyst.

Name the common uses of solvents in the nail industry.

56. The learner will define solvent and identify the solvents used in the nail profession and describe the safe use and handling of these chemicals.

List the different ingredients that make up nail polish.

57. The learner will identify the common ingredients in nail polish and their function and purpose, i.e. solvents, plasticizers, UV stabilizers, pigments and dispersants.

Explain how a nail plate and a nail product are able to adhere to each other.

58. The learner will define adhesion and adhesives and describe the difference between adhesive and glue and identify the ingredients in each.
59. The learner will identify the composition, function and physics of priming agents both methacrylic acid and non-acid formulations.

Describe how monomers and polymers relate to each other.

60. The learner will define monomer, polymer, cross-linked polymer and simple polymer.

Compare the differences of the three artificial nail systems.

61. The learner will describe the composition and use of nail wrap resins, fibers and accelerators.
62. The learner will define and describe the use of ethyl methacrylate, methyl methacrylate, methoxyethoxyethyl methacrylate, urethane acrylate oligomers, diacrylates and dimethacrylates.
63. The learner will describe the composition and use of liquid and powder cold cure acrylics.
64. The learner will describe the composition and use of UV light cured gel systems.

Describe the structure of the nail.

65. The learner will identify, locate and describe the function of the free edge, onychodermal band, nail plate, nail wall, lunula, eponychium, cuticle, nail matrix, nail root, mantle, nail bed, nail folds, perionychium, bed epithelium and hyponychium.

Identify and describe common nail diseases and disorders

66. The learner will define onyx and onychology.
67. The learner will recognize, identify the cause and describe the safe and correct course of action for onychomycosis, paronychia, onychia, onychopotosis, onychomadesis, onychatrophia, onycholysis, blue nails, eggshell nails, corrugations, kolionychia, furrows, pterygium, onychogryposis, onychocryptosis,
tile-shaped nails, pincer nails plicatured nails, onychauxis, onychophyma, agnails, bruised nails, onychophagy, onychorrhaxis, leuconychia, and melanonychia.

68. The learner will recognize, define and describe the difference between bacterial infections and fungal infections of the nail.

List the six primary functions of the skin.

69. The learner will describe the purpose and functions of the skin.

Describe the basic physiology of the skin.

70. The learner will identify, locate and describe the function of the epidermis, dermis, subcutaneous layer, papillary dermis, reticular dermis, stratum corneum, stratum lucidum, stratum granulosum, and stratum spinosum and stratum germinativum.

71. The learner will define and describe the purpose and function of collagen, elastin, melanin, melanocytes and keratin.

Recognize common diseases and disorders of the skin.

72. The learner will define dermatology and dermatologist.

73. The learner will recognize, identify the cause and describe the safe and correct course of action for a macule, papule, vesicle, bulla, pustule, wheal, tumor or nodule, cyst, scale, crust, excoriation, fissure, scar, ulcer, verruca, herpes simplex, tinea manus, tinea pedis, contact dermatitis, psoriasis, eczema, hyperkeratosis, callus, corn, melanoderma, chloasma, mole, naevus, leukoderma, albinism, and vitiligo.

74. The learner will recognize and describe the four signs of melanoma.

ASSESSMENT OF LEARNER OUTCOMES:
Student progress is evaluated by means that include, but are not limited to, exams, written assignments, class participation, and attendance.

SPECIAL NOTES:

This syllabus is subject to change at the discretion of the instructor. Material included is intended to provide an outline of the course and rules that the instructor will adhere to in evaluating the student’s progress. However, this syllabus is not intended to be a legal contract. Questions regarding the syllabus are welcome any time.

Kansas City Kansas Community College is committed to an appreciation of diversity with respect for the differences among the diverse groups comprising our students, faculty, and staff that is free of bigotry and discrimination. Kansas City Kansas Community College is committed to providing a multicultural education and environment that reflects and respects diversity and that seeks to increase understanding.

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