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Course Outline for SURG 51

SURGICAL PATIENT CARE CONCEPTS

Effective: Fall 2008

I. CATALOG DESCRIPTION:
SURG 51 — SURGICAL PATIENT CARE CONCEPTS — 12.00 units

This course consists of lectures and discussions of topics regarding the care of patients before, during, and after surgery and the role the surgical technologist plays in providing this care. Labs will cover the purpose, function, and applications of supplies and equipment such as surgical instruments, dressings, sutures, the operating room furniture, drains and catheters. An emphasis will be placed on the safety of patients and personnel with regards to potential hazards from the use of lasers or electrical machines, chemicals, or infectious microorganisms. Students will explore theoretical concepts of physiological and pathophysiological functions and the interventions provided by the surgical team. Examples of these interventions include but are not exclusive to maintaining normal physiological parameters, and the control of hemorrhage. Additional discussion will cover the legal, ethical and professional issues that surround the practice of surgical technology.

6.00 Units Lecture 6.00 Units Lab

Prerequisite
SURG 50 - BASIC/BIOMEDICAL SCI-SURG TECH
with a minimum grade of C

Grading Methods:
Letter Grade

Discipline:

	MIN
Lecture Hours:	108.00
Lab Hours:	324.00
Total Hours:	432.00

II. NUMBER OF TIMES COURSE MAY BE TAKEN FOR CREDIT: 1

III. PREREQUISITE AND/OR ADVISORY SKILLS:

Before entering the course a student should be able to:

A. SURG50
1. Explain the different organizational levels of the human body (including cells, tissues, membranes, cavities and regions, organs and systems);
2. Discuss human growth and development;
3. Describe the layers and the functions of the skin and its accessory structures;
4. Outline wound healing;
5. Review bone and cartilage formation and function;
6. List types of joints and their functions;
7. Compare the different types of muscles and describe their functions and actions;
8. List the major structural and functional divisions of the nervous system;
9. Distinguish between the different types of general and special senses;
10. Summarize the mechanisms and functions of nociceptors, proprioceptors, and touch receptors, as well as vision, hearing, equilibrium, olfaction and gustation;
11. Assess the function of the different blood components;
12. Explain blood typing;
13. Describe the clotting mechanism;
14. Summarize heart function, including a description of the cardiac cycle and the cardiac conduction system;
15. Distinguish between fetal and adult circulation patterns;
16. List and explain factors that affect the circulation;
17. Appraise the three basic different functions of the lymphatic system;
18. Describe the mechanistic function of inspiration and expiration, and internal and external respiration;
19. Identify the functions of the different parts of the digestive system and its accessory structures, starting with the oral cavity and following it through to the rectum and anus;
20. Compare and contrast mechanical and chemical digestion;
21. Evaluate and illustrate the specific functions of pancreas, liver, and gallbladder;
22. Describe the functional unit of the kidneys;
23. List functions of ureters, bladder and urethra;
24. Describe urine composition;

25. Compare and contrast the functions of the different parts of the male and female reproductive system, including ovaries, fallopian tubes, uterus, cervic, breast, testes, epididymis, accessory glands, penis;
26. Outline oogenesis and spermatogenesis;
27. Distinguish between ovarian and uterine cycles;
28. Describe the functions of the endocrine glands, such as pituitary, thyroid, parathyroid, adrenal, pancreas, gonads, thymus;
29. Given an organ system, describe three pathologies for which surgery is performed;
30. Describe developmental defects of each organ system;
31. Summarize cancers of each organ system;
32. List degenerative diseases of each organ system;
33. Explain fluid and hemodynamic disorders;
34. Illustrate traumas of each organ system;
35. Identify infectious diseases of each organ system;
36. List three microbes and the roles they play in normal human function and in disease;
37. Relate mechanisms of infection with aseptic practices;
38. Describe microbiology and its surgical applications;
39. Review the development of modern microbiology and the historical theories;
40. Describe microbial cell structure and function;
41. Compare and contrast the different types of microbial agents and their characteristics;
42. Explain the process of infection and human and microbial defense mechanisms;
43. Explain the principles of sanitation, disinfection, sterilization, and aseptic technique;
44. Apply some of the fundamental principles of physics to the operating room;
45. Review the basic concepts of mechanics as it relates to the human body and to surgical equipment;
46. Examine the physics of light as it relates to vision and fiber optics and lasers;
47. Explain the physics of sound as it relates to hearing and ultrasonic equipment;
48. Explain chemistry, such as matter and thermodynamics, as it relates to the human body as well as steam sterilization, and warming/cooling devices;
49. Define electricity and identify the terms related to electricity and electrical flow;
50. Identify the basic principle of electrical flow and the types of electrical current;
51. Define the components of an electrical receptacle;
52. Review the physics of electricity as it relates to the human body and electrical devices used in surgery, electro-surgery and electrocautery;
53. Apply electrical knowledge to safe patient care practices in the OR;
54. Discuss the basic concepts related to robotics;
55. Describe the concepts of geometry that are used in the design of surgical robots;
56. Identify the basic components and mechanisms of the robotic system;
57. List the clinical applications of robotics in the OR;
58. Apply the principles of robotics to safe patient care practices in the OR;
59. Read a passage from a medical textbook and interpret its meaning.

IV. MEASURABLE OBJECTIVES:

Upon completion of this course, the student should be able to:

A. Describe the furnishings of a basic operating room;
B. Define the role of the surgical technologist and list the agencies governing the practice of the profession;
C. Identify the roles of the other members of the Surgical Team;
D. Given a selected piece of surgical equipment, discuss its purpose and a precaution to take when using it;
E. Given an application, identify the appropriate surgical supply item;
F. Assemble a Major Instrument set using an instrument count sheet;
G. Explain the steps of normal wound healing and describe factors that can either promote or prevent this process;
H. Distinguish between absorbable and non-absorbable sutures and cutting versus round suture needles;
I. Identify devices that can either monitor or regulate physiologic parameters of temperature, heart rate, oxygenation, and blood pressure;
J. Demonstrate infection control practices such as aseptic technique, surgical hand scrub, gowning and gloving, standard precautions;
K. Describe the purposes for and the basic rules of a surgical skin prep and urinary catheterization;
L. Describe methods of decontamination, disinfection, and sterilization of instruments and equipment;
M. Given a patient position, choose the equipment to maintain this position and the drapes used to create a sterile field around it;
N. Describe the handling of a selected surgical specimen;
O. Demonstrate a working knowledge of medication, proper dosages and administration methods and techniques;
P. Accurately identify and interpret different types of medication orders;
Q. Compare and contrast methods agents and techniques of anesthesia in administration;
R. Analyze a given ethical dilemma and identify the ethical principle(s) involved;
S. Differentiate between the following legal terms; accountability, negligence, malpractice;
T. Demonstrate professional behavior and communication skills.

V. CONTENT:

A. Communication and Professionalism
    1. Professional Conduct
    2. Group dynamics
    3. Teamwork
    4. Effective communication skills
B. Introduction to Surgical Technology
    1. The roles of the Surgical Team Members
    2. Government and professional organizations that govern the practice
    3. Orientation to hospital and surgical services management and organization
    4. Orientation to the O.R. Facilities
C. Preoperative Care of the Patient
    1. The biopsychosocial needs of the patient
    2. Preparation of the patient for surgical intervention
    3. Applications of the Universal Protocol
    4. Transportation, transfer, and positioning
    5. Anesthesia concepts
D. Preoperative Preparation of the Operating Room
    1. Case selection
    2. Furniture arrangement
    3. Equipment
    4. Supplies
    5. Instrumentation
E. Infection Control Practices
    1. Surgical attire

2. Traffic patterns
3. Asepsis and sterile technique
4. Skin preparation and urinary catheterization
5. Scrubbing, gowning and gloving
6. Preparation of the sterile field
7. Decontamination
8. Disinfection
9. Sterilization

F. Intraoperative Care of the Patient
1. Homeostasis and emergency procedures
2. Wounds, incisions, and wound healing
3. Hemostasis
4. Specimen care
5. Tissue approximation
6. Application of catheters, drains, and dressings

G. Hazards to Patients and Personnel
1. Physical Hazards
2. Chemical Hazards
3. Biological Hazards
4. Risk Management

H. Postoperative Care of the Patient
1. Post Anesthesia Care Unit
2. Discharge planning
3. Health and wellness
4. Issues around death and dying

I. Pharmacology
1. Medications
2. Dosage
3. Administration
4. Technique
5. Calculations
6. Interpret orders

J. Legal and Ethical Issues
1. Legal issues
2. Patient's rights
3. Ethical and moral issues
4. Surgical Technologist's scope of practice

VI. METHODS OF INSTRUCTION:
A. **Lecture** -
B. **Discussion** -
C. Oral presentation
D. Writing assignments
E. **Lab** - practice

VII. TYPICAL ASSIGNMENTS:
A. Reading assignment: Read Chapter 29, "Wound Healing", pages 579-601, Berry and Kohn's Operating Room Technique, 11th Ed., Phillips, 2007: Mosby. Be prepared to describe the normal stages of wound healing. Define surgical wound complications and factors that affect wound healing. Identify drains, catheters, and dressings and their use in promoting healing. B. Correctly assemble a Major Instrument Set. C. Write a report of a surgical observation following a prescribed format. D. Discuss a given ethical dilemma with a small group of fellow students. Be prepared to give an oral report. E. Complete a flow chart on preparing the operating room.

VIII. EVALUATION:
A. **Methods**

1. Exams/Tests
2. Quizzes
3. Papers
4. Other:
    a. Methods
        1. Timed quizzes
        2. Grading of written assignments
        3. Demonstration of basic skills
        4. Midterm
        5. Final Examination

B. **Frequency**

1. Frequency
    a. Time quizzes at least one a week
    b. Weekly written assignments
    c. At least weekly demonstration of skills
    d. At least 2 mid-terms
    e. Comprehensive final exam

IX. TYPICAL TEXTS:
1. Phillips, Nancymarie *Berry and Kohn's. Operating Room Technique.* 11th ed., Mosby Elsevier, 2007.
2. Tighe, Shirley *A Photographic Manual, Instrumentation for the Operating Room.* 7th ed., Mosby Elsevier, 2007.
3. Snyder, Katherine *Pharmacology of the Surgical Technologist.* 2nd ed., Mosby Elsevier, 2005.

X. OTHER MATERIALS REQUIRED OF STUDENTS:
A. Name badge
B. Scrub suit