

KINGSBOROUGH COMMUNITY COLLEGE

Of

The City University of New York

Department of Nursing

ST 3 – Surgical Technology III

Prerequisite: ST 1, ST2

Corequisites: ST3P

Course Syllabus: 2009

Credit Hours: 4

Catalogue Description: This course provides an introduction to surgical pharmacology, anesthesia, and wound healing physiology. It also discusses the medico-legal aspects of perioperative practice in relation to patient's rights and surgical hazards.

Course Overview: This course intends to introduce the student to the practice of surgical technology with a focus on those functions that impact the circulating role. Both the principles and practice of the circulating role will be taught. This course will be taught as a 4 hour weekly lecture in conjunction with an active hands-on component. The principles will be integrated with the practices at all time.

Course Objectives: Upon successful completion of this course, the student will be able to

1. Demonstrate and discuss the principles of patient transfer and surgical positioning.
2. Demonstrate and discuss the principles of handling of surgical specimens.
3. Demonstrate and discuss the methods of handling medication on the surgical field with Patient Safety Principles intact.
4. Discuss the physiology of wound healing, wound classification and influencing factors.
5. Discuss the practice of Anesthesia including the methods of administration, equipment and adjuncts, as well as the role of the Perioperative personnel.
6. Describe the application of thermoregulatory devices, hemostasis and blood replacement.
7. Discuss patient's rights and surgical consents.
8. Discuss the preoperative preparation of the surgical patient.
9. Discuss the postoperative course of the surgical patient in PACU.

Topical Outline:

Unit I - Surgical Positioning

Unit II - Tissue Specimen

Unit III – Wound Healing

Unit IV - Surgical Pharmacology

Unit V - Anesthesia

Unit VI - Temperature Control, Hemostasis and Blood Replacement

Unit VII – Specialty Equipment

Unit VIII-Preoperative Preparation, Discharge Planning and PACU

Teaching Strategies:

Lecture

Discussion

Demonstration/Return Demonstration

Multimedia

Writing Assignments

Research Paper

Course Requirements:

1. Textbooks

Required:

- AORN *Standards, Recommended Practices and Guidelines*, AORN, Inc, 2008
- Fuller, Joanna K., *Surgical Technology: Principles and Practice, 4th Edition*, Elsevier, 2005
- Ehrich, A. and Schroeder, Carol, L., *Medical Terminology for Health Professions 5th Edition*, Delmar Thomson Learning, 2004
- Goldman, Maxine A., *Pocket Guide to the Operating Room, 3rd Edition*, F.A. Davis, 2008

Recommended:

- Meeker, Margaret, H. and Jane C. Rothrock, *Alexander's Care of the Patient in Surgery*, Mosby, St. Louis, Missouri, 13th Edition, 2007
- Caruthers, Bob L., *Surgical Technology for the Surgical Technologist: A Positive Care Approach*, 3rd Edition, AST Publishers, 2008
- Thomas, L. Clayton, *Taber's Cyclopedic Medical Dictionary*, F.A. Davis, Philadelphia, Pennsylvania, 20th Edition, 2006

2. Attendance:

A student is deemed excessively absent when he or she has been absent 15% of the number of contact hours a class meets during a semester. When a student is excessively absent, a grade of "W" or "WU" will be assigned as described in the college catalog.

3. Health Clearance – CPR Training:

Students are required to have health clearance and evidence of CPR training prior to registration.

During the semester any change in the student's health clearance (e.g., serious illness, accident, pregnancy, etc.) necessitates evaluation by student health service. Student responsibility includes notification of the instructor and course coordinator. Health clearance must be maintained to continue course enrollment.

4. Evaluation:

Grades will be calculated according to college and departmental policy as follows:

A+	97-100
A	93-96
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	78-79
C	75-77
C-	70-74
D+	66-69
D	60-65
F	<60 and below
W	Withdrew without penalty
WU	Unofficial Withdrawal (Counts as failure)
INC	Term's Work Incomplete. Counts as "F" grade unless work is completed within six months.

Grades will be determined as described below:

Unit Tests:	55%
Writing Assignments	5%
Research Paper	10%
Final Exam	30%

The Department of Nursing adheres to the Policies and Procedures on Academic integrity as set forth by CUNY. See the Surgical Technology Student Handbook, The KCC Catalog and website for additional information.

Students are expected to take all tests when scheduled. Exceptions to this rule will be for emergency situations and the faculty must know in advance.

Students who do not take a test on the scheduled date are required to take a makeup test. All makeup tests will be given at the end of the semester. Students who fail to take the Scheduled exams or makeup will receive a grade of zero for that test.

A conference with the instructor is required at mid-semester and at the end of the course to discuss the student's progress. Students may initiate conferences at other times.

5. Classroom Decorum:

All pagers, wireless phones, electronic games, radios, tape or CD players or other devices that generate sound must be turned off when any member of the academic community enters a classroom. Cellular devices are allowed to be on in the classroom only if the owner is using the caller ID, voice messages or a vibrating battery or universal clip mechanism. **NO TEXTING IS ALLOWED AT ANY TIME DURING CLASS AND/OR LABS.** Members of the academic community must exit the classroom to make or receive calls.

2. Retention Criteria:

Criteria for retention in the Program mandates that students must:

- a. receive no more than two grades under "C" in any pre or corequisites
- b. earn a minimum final grade of "C" in every Surgical Technology course.
- c. the student must repeat a Surgical Technology course once if the grade is below "C"
- d. a second grade below "C" will result in the student's dismissal from the program.
- e. Students who fail a course achieving a grade of not less than "C-" may apply to repeat the course one time only. Repeating the course is subject to space availability.
- f. Students must submit an **"Intent to Return to Surgical Technology Form"** outlining what they thought caused them to be unsuccessful and include a plan for success that demonstrates significant changes in how they will approach the course when repeated.

3. Fatigue can certainly impair a health care worker's ability to provide safe, professional care. Thus KCC's Nursing Department states: All students need to carefully assess his/her level of fatigue, school requirements in terms of lecture, on-campus labs and clinical experiences and own work schedules. This assessment should carefully consider the potential impact of excessive employment on his/her ability to provide safe, professional care. Each student has an ethical responsibility to ensure that fatigue does not negatively impact student responsibilities.

UNIT 1	Surgical Positioning		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
<p>Upon completion of this unit the student shall be able to:</p> <p>1. Discuss those factors that determine the surgical position.</p>	<ol style="list-style-type: none"> 1. Anesthesia 2. Surgeon 3. Patient 4. Procedure/incision 5. Safety considerations 	<p style="text-align: center;">Week 1</p> <p>Reading assignment: Fuller: P 162-195</p> <p><i>AORN Standards and Recommended Guidelines,</i> Positioning the Patient in the Perioperative Practice Setting Film:: “Safely Positioning the Surgical Patient.”</p>	
<p>2. Demonstrate the use of the surgical table and accessories.</p>	<ol style="list-style-type: none"> 1. Surgical table function. 2. Stirrups 3. Armboards 4. Extensions. 5. Ether screens 		<p>The student will:</p> <ol style="list-style-type: none"> 1. Demonstrate the proper method of manipulation of the OR bed. 2. Demonstrate the application of all table parts.
<p>3. Demonstrate basic surgical positions, equipment and safety considerations.</p>	<ol style="list-style-type: none"> 1. Positions <ul style="list-style-type: none"> - supine/dorsal recumbent - reverse trendelenburg - trendelenburg - prone - lithotomy - lateral - Kraske/jackknife - other 2. Supplies <ul style="list-style-type: none"> - padding - stabilization devices. 	<p style="text-align: center;">Week 2</p> <p>Media Center:</p> <ol style="list-style-type: none"> 1. Surgical Positioning, Prepping and Draping <p>Reading Assignment: Ehrich & Schroeder, <i>Medical Terminology for Health Professionals</i>, p 434-436</p>	<p>The student will:</p> <ol style="list-style-type: none"> 1. Demonstrate the proper method of positioning the surgical patient in all positions. 2. Demonstrate the application and use of all stabilization devices.
<p>4. Demonstrate safe methods of patient transfer techniques.</p>	<ol style="list-style-type: none"> 1. Methods of transportation 2. Safety principles 3. Assistive devices 		<p>The student will:</p> <ol style="list-style-type: none"> 1. Demonstrate the proper method of patient transport both pre and post operatively.

UNIT 2	Tissue Specimen		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
<p>Upon completion of the unit the student will be able to:</p> <p>1. Discuss cell pathology, the mechanisms of disease and the concept of tumors.</p>	<p>1. Cell pathology</p> <ul style="list-style-type: none"> - Structure and function of normal cells. - Response and adaptation to injury. <p>2. Mechanisms of disease</p> <ul style="list-style-type: none"> - Causes of disease - Aging and death <p>3. Tumors</p> <ul style="list-style-type: none"> - Terminology - Classification - Causes of cancer - Diagnosis of cancer - Staging and grading - Surgical treatment 	<p style="text-align: center;">Week 3</p> <p>Ehrlich and Schroeder, <i>Medical Terminology for Health Professionals</i>, p. 159-172</p>	
<p>2. Define the various types of specimen.</p>	<p>1. Specimen types:</p> <ul style="list-style-type: none"> - frozen sections - permanent sections - stones - cytology/body fluids/ washings - cultures/aerobic and anaerobic - amputated limbs - tissue banks - foreign bodies - legal evidence 	<p>Handout:</p> <ul style="list-style-type: none"> - Sample Policy and Procedures - Forensic Evidence <p>Reading assignment: Fuller: P 309-312, 342 <i>AORN Standards, Recommended Practices and Guidelines</i> Specimen Care and Handling</p>	

UNIT 3	Wound Healing		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
Upon completion of the unit the student will be able to: 1. Define the immune responses that occur as the body's defense against pathogens.	1. Immunology - antigen - antibody - antigen-antibody reaction 2. Immune response 3. Types of immunity	Week 4 Reading assignment: Fuller: P 106-107	
2. Describe causes of tissue damage	1. Surgical incision 2. Traumatic wounds 3. Chemicals 4. Heat/cold 5. Burns 6. Other	Ehrlich and Schroeder, <i>Medical Terminology for Health Professionals</i> , Chapter 6	
3. Define the characteristics of the inflammatory process.	1. Redness 2. heat 3. Pain 4. Swelling		
4. Describe the healing process.	1. Process - scar formation 2. Types of healing - first intention - second intention - third intention 3. Stages of wound healing.		
5. Identify factors influencing healing and complications.	1. Influencing factors - age - nutritional status - physical condition - disease process - surgical technique - infection 2. Complications - hemorrhage/hematoma - wound disruption/herniation - infection - sinus tract formation		

6. Identify wound classifications	1. Clean 2. Clean/contaminated 3. Contaminated 4. Infected		
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UNIT 4	Surgical Pharmacology		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
<p>Upon completion of the unit the student will be able to:</p> <p>1. Define general terminology regarding drugs used in surgery.</p>	<p>1. General definitions. 2. Abbreviations. 3. Calculations</p>	<p style="text-align: center;">Week 5</p> <p>Handouts: Pharmacology Review List</p> <p>Reading Assignment: Fuller: P 244-270</p>	
<p>2. Discuss the care and handling of drugs on the surgical field.</p>	<p>1. Drug identification - label information - circulator/scrub responsibility 2. Aseptic practice. 3. Techniques for identification. 4. Laws, policies and procedures.</p>	<p>Handouts: Sample Policy and Procedure Joint Commission Sentinel Alert re medications.</p>	
<p>3. Discuss and identify those pharmacological agents used on the sterile field.</p>	<p>1. Anticoagulants. 2. Hemostatics. 3. Irrigation antibiotics. 4. Constrict agents. 5. Local Anesthetics. 6. Dyes</p>	<p>Reading Assignment: Ehrlich and Schroeder, <i>Medical Terminology for Health Professionals</i>, P 445-449</p>	

UNIT 5	Anesthesia		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
<p>Upon completion of the unit the student will be able to:</p> <p>1. Describe those factors that influence the selection of Anesthesia.</p>	<ol style="list-style-type: none"> 1. Patient factors 2. Types and duration of procedure. 3. Surgeon preference. 4. Patient preference. 5. Anesthesiologist's preference. 6. Other 	<p style="text-align: center;">Week 6 & 7</p> <p>Reading assignment: Fuller: P 215-243 <i>AORN Standards, Recommended Practices and Guidelines:</i></p> <ul style="list-style-type: none"> - Analgesia – Managing the Patient receiving Moderate Sedation Analgesia - Anesthesia Equipment – Cleaning and Processing - Local Anesthesia – Managing the Patient - Malignant Hyperthermia 	
<p>2. Discuss the role of preoperative medications.</p>	<ol style="list-style-type: none"> 1. Preoperative medications 2. Drug actions: <ul style="list-style-type: none"> - relaxation - neuroleptosis - analgesia - drying secretions - gastric acid reduction - vagal blockade - other 		
<p>3. Describe the types of anesthesia and methods of administration.</p>	<ol style="list-style-type: none"> 1. Types of anesthesia. <ul style="list-style-type: none"> - balanced general - regional - spinal - epidural - neuroleptosis - local infiltration - topical - cryoanesthesia - hypnoanesthesia - acupuncture 		

4. Describe the phases of general anesthesia and staff role during each.	1. Phases - Induction -Maintenance - Emergence - Recovery 2. Responsibilities within the scope of practice		
5. Identify adjuncts and monitoring devices used in surgery.	1. Adjuncts - hypothermia/hyperthermia unit - blood warming devices - blood pump/rapid infuser - infusion control devices - double cuff pneumatic tourniquet 2. Monitoring devices - electrocardiogram - blood pressure devices - pulmonary artery catheter - central venous pressure catheter - temperature monitors - pulse oximeter - controlled ventilation - system for anesthetic and respiratory analysis - bispectral index monitoring (BIS) - stethoscopes and dopplers -arterial blood gases.	Week 8	
6. Discuss complications resulting from the administration of anesthesia.	1. Aspiration 2. laryngospasm/bronchospasm 3. Shock 4. Cardiac arrhythmias 5. Cardiac arrest 6. Malignant Hyperthermia	Film: “Too Hot to Handle”	

UNIT 6	Temperature Control, Hemostasis and Blood Replacement		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
Upon completion of the unit the student will be able to: 1. Describe temperature control and adjunct devices with the indication for their use.	1. Types of devices - hypothermia blankets - blood warmers - thermal drapes	<p style="text-align: center;">Week 9</p> Reading assignment: Fuller: P 220, 383, 265, 313-316	The student will: 1. Demonstrate the proper method of application of temperature adjuncts.
2. Identify the use of circulatory assistance devices to prevent thrombosis	1. Review blood-clotting mechanism 2. Sequential circulation devices	Film: “SCD”	The student will: 1. Demonstrate the proper method of application of circulatory adjuncts.
3. Discuss methods of hemostasis for the surgical patient.	1. hemostasis - hemostatic instruments - ligature - pressure - hemostatic clips - pharmacologic agents - bone wax - electrocoagulation - Argon beam	<i>AORN Standards, Recommended Practices and Guidelines</i> - Electrosurgery Film: “Principle and Recommended Practices for Electrosurgery”	The student will: 1. Demonstrate the proper method of hemostatic methods on the sterile field: clips, bone wax. 2. Demonstrate the proper method of use of electrocautery devices.
4. Discuss blood replacement and autotransfusion technologies	1. Monitoring blood loss. 2. Handling blood replacement components. 3. Autotransion - indications and contraindications - advantages and disadvantages - types of systems and devices	Reading Assignment: Fuller: P 229-230, 260, 265, 314 Handout: Summary in indications from Cell Saver providers	The student will: 1. Demonstrate the proper method to prepare for autotransfusion on the sterile field.

UNIT 7	Specialty Equipment		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
<p>Upon completion of the unit the student will be able to:</p> <ol style="list-style-type: none"> 1. Identify specialty equipment used in the clinical area. 	<p>Specialty Equipment:</p> <ol style="list-style-type: none"> 1. Lasers 2. Harmonic scalpel 3. Pneumatic tourniquet 4. Power equipment 5. Microscopes 6. Headlamps 7. Irrigation/aspiration unit 8. Cryotherapy unit 9. Insufflators 10. Nerve stimulators 	<p style="text-align: center;">Week 10</p> <p>Reading assignment: Fuller: P 347-379</p>	

UNIT 8	Preoperative Preparation, Discharge Planning and PACU		
Learner Objectives	Content/Lecture Discussion	Related Learner Experiences	Laboratory Objectives
<p>Upon completion of the unit the student will be able to:</p> <p>1. Discuss the care that the surgical patient may receive prior to the scheduled procedure; e.g. diagnostic testing.</p>	<p>1. Prior to admission</p> <ul style="list-style-type: none"> - lab tests as appropriate - x-rays as appropriate - consent - allergies, handicaps, limitations - preoperative instruction and education <p>2. Evening/morning prior</p> <ul style="list-style-type: none"> - enemas - shave prep - nail polish - sedation - NPO - shower/bath - oral hygiene -makeup <p>3. Immediately prior</p> <ul style="list-style-type: none"> - patient identification - jewelry/denture/glasses - void/catheter - base line vital signs 	<p style="text-align: center;">Week 11 & 12</p> <p>Reading assignment: Fuller: 380-403</p> <p>Ehrlich & Schroeder, <i>Medical Terminology for the Health Professions, Chapter 15, 429-460</i></p>	
	<ul style="list-style-type: none"> - Family - safe, quiet environment - Preoperative medications <p>4. Age Specific Considerations</p>	<p>Handout: Perioperative Age Related Competencies.</p>	
<p>4. Discuss the care given in the Post Anesthesia Care Unit.</p>	<p>1. Postoperative Care</p> <p>2. Equipment</p> <p>3. Emergency Readiness</p>		
<p>5. Discuss the process of discharge planning.</p>	<p>1. Criteria for discharge.</p>		

