

El Paso Community College
Syllabus
Part II
Official Course Description

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|---------------------------------|---|-----------------|-----------------|----------|-----------------|----------------|------------|--|------------|
| SUBJECT AREA | <u>Surgical Technology</u> | | | | | | | | |
| COURSE RUBRIC AND NUMBER | <u>SRGT 1244</u> | | | | | | | | |
| COURSE TITLE | <u>Technological Sciences for the Surgical Technologist</u> | | | | | | | | |
| COURSE CREDIT HOURS | <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;"><u>2</u></td> <td style="text-align: center;"><u>2</u></td> <td style="text-align: center;">:</td> <td style="text-align: center;"><u>1</u></td> </tr> <tr> <td style="text-align: center;">Credits</td> <td style="text-align: center;">Lec</td> <td></td> <td style="text-align: center;">Lab</td> </tr> </table> | <u>2</u> | <u>2</u> | : | <u>1</u> | Credits | Lec | | Lab |
| <u>2</u> | <u>2</u> | : | <u>1</u> | | | | | | |
| Credits | Lec | | Lab | | | | | | |

I. Catalog Description

Provides specialized surgical modalities covered include endoscopy, microsurgery, therapeutic surgical energies, and other integrated science technologies. A grade of “C” or better is required in this course to take the next course to take the next course. **Prerequisites: SRGT 1405 and SRGT 1509. Corequisites: SRGT 1541 and SRGT 2560. (2:1).**

II. Course Objectives

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

- A. Unit I Diagnostic Methods and Safety Concepts
 - 1. List sources of patient data.
 - 2. Describe invasive and non-invasive procedures used to establish a diagnosis.
 - 3. Discuss general safety concepts regarding use of and exposure to equipment used intraoperatively for diagnosis and treatment of disease.

- B. Unit II - Endoscopy / Minimally Invasive Surgery
 - 1. Describe general characteristics of endoscopes.
 - 2. Differentiate between types of endoscopes and their surgical applications.
 - 3. Identify the components of an endoscopic system.
 - 4. Explain the use of accessory items.
 - 5. Explain the care, handling, and sterilization/disinfection of endoscopic components.
 - 6. Discuss rationale for anatomical placement of operative working ports.
 - 7. Create an operative care plan for various laparoscopic surgical procedures.
 - 8. Describe possible pre-operative set-up variations according to procedural indications.
 - 9. Describe safety measures to be implemented in the use of endoscopic equipment.
 - 10. Demonstrate proper handling of laparoscopic instrumentation and internal stapling devices.
 - 11. Describe various fiberoptic devices used in the OR.
 - 12. Explain measures for proper use of and prolonging life of fiberoptic equipment.

- C. Unit III- Electricity, Electrosurgery and Fire Safety
1. Discuss general terminology related to various forms of electrical energy.
 2. Differentiate between alternating current, direct current, and static electricity.
 3. Describe various potential electrical hazards and preventative safety measures.
 4. Compare types of electrical shock as they relate to surgical patients and personnel.
 5. Explain the concept of grounding electrical equipment.
 6. Explain the flow of current in an electrosurgical unit system.
 7. Describe the functions of the electrosurgical unit.
 8. Compare and contrast electrodes of the ESU.
 9. Describe placement rationale of the ESU patient return electrode.
 10. Compare monopolar and bipolar units.
 11. Identify safety precautions to be considered when using the electrosurgical unit.
 12. Discuss prevention of electrical and thermal burns in the operating room.
 13. Identify flammable agents and ignition sources which contribute to fires or explosions.
 14. Discuss the use of alarm systems, fire extinguishers and other containment methods.
- D. Unit IV- Ionizing and Non-Ionizing Radiation
1. Explain the basic concepts of ionizing radiation.
 2. Compare and contrast the positive and negative physiological effects of ionizing radiation.
 3. Describe types of equipment which utilize ionizing radiation encountered in the operating room.
 4. Discuss ways patients and OR personnel are exposed to ionizing radiation.
 5. Identify methods of reducing patient exposure to ionizing radiation.
 6. Describe safety precautions to limit staff exposure to ionizing radiation.
 7. Explain the basic concepts of non-ionizing radiation.
 8. Identify commonly used surgical lasers and their physical properties.
 9. Compare and contrast the advantages and disadvantages of laser use in surgery.
 10. Discuss safety factors as outlined by regulatory agencies for patients and personnel.
 5. Describe the functions of a designated laser team in an OR.
- E. Unit V- Ultrasonic and Hydrodissection Devices
1. Describe the basic concepts of ultrasonic energy.
 2. Compare and contrast the physiological tissue effects of mechanical energy versus electrosurgical energy.
 3. Outline system components of an ultrasonic scalpel.
 4. Discuss surgical indications for use of the CUSA unit.
 5. Identify indications for use of hydrodissection devices.
 6. Relate use of hydrodissection to various surgical procedures.
- F. Unit VI - Robotics and Guided Imagery
1. Discuss the basic concepts related to use of robotic devices; past, present and future.
 2. Discuss clinical applications of robotic devices in the operating room environment.
 3. Define basic terms related to stereotaxis and guided imagery systems.
 4. Relate uses of traditional diagnostic methods in creating three-dimensional, virtual patient models.
 5. Compare the advantages and disadvantages of use of new surgical technologies versus traditional methods.
- G. Unit VII - Microscopes and Microsurgery
1. Discuss indications for use of the operative microscope.
 2. Compare and contrast various mounting, lighting, and magnification systems.

3. Discuss safety measures for care and use of the operating microscope.
4. Compare and contrast the design of microsurgical instrumentation and passing techniques employed as compared to non-microsurgical procedures.

III. THECB Learning Outcomes (WECM)

1. Employ the principles of technological sciences to surgical specialties.
2. Select instruments, equipment, and supplies related to technological sciences.
3. Identify expected outcomes, and complications related to surgical modalities.

IV. Evaluation

A. Preassessment

1. The student must have completed SRGT 1405 and SRGT 1409.

B. Postassessment

1. Written examinations will be administered at the completion of unit(s).
2. Unannounced quizzes may be administered at beginning of class.
3. A comprehensive final exam will be administered at semester's end.
4. Study Guide/Lab Manual assignments will be checked and graded.

C. Remediation

The instructor will provide individual procedures for students needing remediation after an individual conference has been scheduled. Such procedures may include but are not limited to supplementary assignments, tutorial assistance, etc.

D. Grading

1. All unit exams will be weighted equally.
2. All unit exams will be averaged together and computed as 65% of the semester grade.
3. A comprehensive final exam will be computed as 20% of the semester grade.
4. Quizzes will be averaged together and computed as 5% of the semester grade.
5. Study Guide/Lab Manual assignments will be computed as 10% of the semester grade.
6. Grading Scale
A = 93 - 100
B = 85 - 92
C = 77 - 84
7. Grades are rounded.
8. SRGT 1244 must be completed with an 77% or better.

V. Disability Statement (American with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.