



OAKLAND
COMMUNITY
COLLEGE

SURGICAL TECHNOLOGY NEEDS ASSESSMENT

Final Report

Requested by:

Chancellor's Council
and
College Curriculum Committee

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Table of Contents

Occupational Issues

- QUESTION 1: In what industry or industries are students likely to work after taking courses in this program?
- QUESTION 2: What are the mid and long range forecasts for this program?
- QUESTION 3: What occupation or occupations are students likely to obtain after taking courses in the program?
- QUESTION 4: What skills must students learn while in the program in order to gain employment or to successfully transfer?
- QUESTION 5: Are these positions entry level or are they more advanced?
- QUESTION 6: Are these occupations experiencing growth or are job openings due to replacement?
- QUESTION 7: What is the expected annual salary for these occupations?
- QUESTION 8: What are the minimum education and experience requirements of employers?
- QUESTION 9: To what extent are there opportunities for advancement in the field?
- QUESTION 10: What are the national, regional, and local job prospects?
- QUESTION 11: Why is the program needed?

Academic Issues

- QUESTION 1: Description of the proposed program
- QUESTION 2: For whom is the program primarily designed?
- QUESTION 3: What is the primary intent of the program?
- QUESTION 4: Will the program lead toward a certificate or degree? Why?
- QUESTION 5: What are the intended course delivery formats for each course?
- QUESTION 6: What are the intended student outcomes for each course?
- QUESTION 7: What are the intended student outcomes for the program?

Administrative Issues

- QUESTION 1: Relation between the proposed program and the College's Mission and Purposes
- QUESTION 2: What is the expected duration of need for this program?
- QUESTION 3: What are the indicators for student/customer demand for the program?

- QUESTION 4: What is the estimated size of the professional continuing education market for this program?
- QUESTION 5: What are the characteristics of the students who are most likely to enroll in the program?
- QUESTION 6: What is the size of each of these markets?
- QUESTION 7: To what extent are there similar programs being offered in Southeast Michigan and will OCC be competing for the same students?
- QUESTION 8: How many students are expected to enroll in the program over a five-year period?
- QUESTION 9: How many students are expected to complete (graduate) from the program over a ten -year period?
- QUESTION 10: What are the enrollment and degree trends at other institutions with similar programs?
- QUESTION 11: To what extent are there opportunities for partnerships, alliances, articulation agreements with other educational institutions as well as business?
- QUESTION 12: What are the annual costs associated with the program?
- QUESTION 13: What are the start up costs associated with the program?
- QUESTION 14: What is the capacity at each OCC campus to offer courses in the program?
- QUESTION 15: Who will teach the courses? (adjunct and/or full-time faculty)
- QUESTION 16: What are the funding sources to start up the program and maintain the program?
- QUESTION 17: What are the appropriate benchmarks to gauge the success of the program?
- QUESTION 18: How will the program be marketed?
- QUESTION 19: What obstacles exist in developing the program?
- QUESTION 20: What advantages does OCC have in developing the program?

Academic Issues

QUESTION 1: Description of the proposed surgical technologist program

Basic admission requirements:

- High school graduation or GED
- One year of high school (or equivalent) chemistry, algebra, and biology with an average of 2.0 grade point or better in each.
- Elementary algebra (MAT 110) with a grade of C or better if the high school algebra requirement is not met.
- Attendance at an information session.

Course requirements:

Major:

STP141	Foundations of Surgical Technology	6 credits
STP211	Surgical Procedures 1	3 credits
STP215	Pharmacology for the Surgical Technologist	2 credits
STP221	Surgical Procedures 2	3 credits
STP225	Surgical Technology Internship 1	4 credits
STP235	Surgical Technology Internship 2	4 credits
STP237	Surgical Technology Internship 3	6 credits
STP238	Surgical Specialty Elective 1	2 credits
STP239	Surgical Specialty Elective 2	2 credits
STP250	Biomedical Engineering for the Health Care Professional	2 credits

Required Supportive Courses:

ENG151	Composition	3 credits
MED110	Medical Terminology	3 credits
BIO157	Microbiology	3 credits
BIO163	Human Anatomy and Physiology 1	4 credits
BIO164	Human Anatomy and Physiology 2	4 credits
ENG152	Composition 2	
or		3 credits
ENG211	Technical Writing	
MDA135	Medical Law and Ethics	3 credits
CIS100	Computer Literacy	1 credit
PSY251	Introduction to Psychology	3 credits

General Education Requirements:

POL151	Political Science	3 credits required
Humanities	One of the following: HUM151, 152, 171, 190, 272, 290	3 credits required

**Oakland Community College
1999 Surgical Technology Needs Assessment**

Physical Ed One of the following: 130, 159, 162, 164.2, 164.3,
165.3, 165.4, 165.5, 165.7, 165.8, 168.1, 168.2,
173, 173.2, 174, 174.1, 174.2, 174.3, 174.4, 174.5,
174.6, 178.6, 179, 180.2, 180.3, 180.4, 182.2, 182.5,
183.1, 183.2, 183.8, 183.9, 184.1, 184.2, 184.3, 186.2,
188, 189, 192, 192.1, 193, 194.1, 194.2, 261 1 credit required

- The total number of credits required for an Associate's degree for the surgical technologist program is 68.

QUESTION 2: For whom is the program primarily designed? (e.g., new students, existing students, seasoned professionals?)

- Initially, the program will be designed primarily for new students wishing to become certified surgical technologists.
- The program may also attract some existing students with an interest in other Allied Health programs.
- For those currently working in the field (seasoned professionals) who wish to meet the requirements of certification, opportunities will be available to augment their general and occupational education via the program and lead to an Associate's degree and the opportunity to take the certification test.

QUESTION 3: What is the primary intent of the program? (e.g., prepare for transfer, prepare for entry level employment, enhance existing skills, obtain new skills?)

- The primary intent of the program is to prepare new students for entry level employment as surgical technologists.
- A secondary intent of the program will be to enhance the existing skills of those currently employed as surgical technicians by providing them with the training necessary to take and successfully pass the certification exam and meet the requirements for an Associates degree from Oakland Community College.

QUESTION 4: Will the program lead toward a certificate or degree? Why?

- Effective March 1, 2000, candidates desiring to be certified surgical technicians (CST) must meet one of the following criteria:
 1. Have current or previous CST certification
 2. Graduate from a Commission on Accreditation of Allied Health Education Program (CAAHEP)
- Because most hospital accreditation depends on compliance with the above criteria, hospitals are highly motivated to certify their surgical technicians and will be unable to hire additional surgical technicians who are not certified.
- In addition, it is important to Oakland Community College that students are provided with not only a marketable skill but also with the advantages that come from the college experience (i.e., development of critical thinking skills social contact with faculty and other students, exposure to a variety of classes).

**Oakland Community College
1999 Surgical Technology Needs Assessment**

- Assume personal responsibility for professional growth, continued learning, and self-development.
- Develop an understanding of ethical and legal principles of surgical technology practice, the importance of new advances and research, and the impact of political, economic, and societal forces on the profession.
- Be prepared to perform successfully on the comprehensive examination administered by the Liaison Council on Certification for the Surgical Technologist that leads to certification.

Administrative Issues

QUESTION 1: Relation between the proposed program and the College's Mission and Purposes

- Responds to the needs of the community by assisting in alleviating a shortage in the health care field.
- Improves and increases ties within the community by instituting a collaboration between the college and community industry.
- Provided quality education for individuals in the community.

QUESTION 2: What is the expected duration of need for this program?

- It appears that, especially in light of the new certification requirements that go into effect March 1, 2000, there is a critical shortage of Surgical Technicians in the tri-county area. According to William Beaumont Hospital "interest in such a program would be great and longstanding." In starting a "fast-track" program recently, the hospital received 90 applications for 20 spots.
- In addition, annual growth of this occupation is estimated to be 22.5% in Michigan and 31% nationally through 2005-6. This is considered a moderate rate of growth. For additional information regarding future forecasts, see question 4.

QUESTION 3: What are the indicators for student/customer demand for the program?

- The biggest indicator of demand is Beaumont Hospital's stated need for surgical technicians. Other area hospitals have expressed similar needs. Below is a chart of the hospital contacted and the number of surgical technicians on staff, how many are certified, and how many are needed:

Hospital	#Surgical Techs	# Certified	# Needed
Oakland County			
Botsford General Hospital	22	3	4
Crittendon Hospital	4	1	4
Madison Community Hospital	3		
William Beaumont (Royal Oak)	37		17
William Beaumont (Troy)	11		
Macomb County			
St. Johns Macomb Center	2	1	0
St. Joseph's Hospital (Clinton)	21	2	0
Wayne County			
Henry Ford Hospital	38		5
St. Johns Hospital	44		4

- It should be noted that other hospitals have been contacted, but information was unavailable at the time of this report.

**Oakland Community College
1999 Surgical Technology Needs Assessment**

QUESTION 4: What is the estimated size of the professional continuing education market for this program?

- Surgical Technologists will be required to renew their license every six years. So, the estimated size of the graduating classes in OCC's surgical technologist program would serve as a fairly good indicator of size of the professional continuing educational market.
- In addition, there are a substantial number of individuals currently employed as surgical technicians who will need to take additional training if they wish to pass the certification exam to become certified.

QUESTION 5: What are the characteristics of the students who are most likely to enroll in the program?

- According to the Association of Surgical Technologists, "The ability to perform under pressure in stressful and emergency situations is a quality essential to CST's. A stable temperament, a strong sense of responsibility, considerable patience, and concern for order are required. Manual dexterity and physical stamina are vital. They must be able to work quickly, but accurately, and must be oriented to detail, yet able to integrate a number of activities according to priority. They must be keenly sensitive to the needs of the patient as well as to the needs of other members of the surgical team. Individuals who practice this profession have a strong desire to help others and make a valuable contribution to society".

QUESTION 6: What is the size of each of these markets?

- According to at Beaumont hospital, there is already a pool of students waiting to enroll in a surgical technologist program (23?). Since surgical technicians will be required to have certification renewal every six years, there exists the potential for continuing education courses. OCC graduates from this program and those technicians in Oakland County will most likely enroll in OCC's program.

QUESTION 7: To what extent are there similar programs being offered in Southeast Michigan? Will OCC be competing for the same students?

- The following schools offer a certificate or degree in surgical technology:

Delta College
Henry Ford Community College
Kellogg Community College
Lansing Community College
Washtenaw Community College

It is difficult to say whether or not OCC will compete for these students. As it stands, there is a limit to the number of students admitted to Washtenaw Community College, with only 32 admitted for the year ending 1997-98. Henry Ford similarly enrolled only 34. This is in contrast to the 97 admitted by Delta College and 62 by Kellogg Community College in the same academic year.

**Oakland Community College
1999 Surgical Technology Needs Assessment**

QUESTION 8: How many students are expected to enroll in the program over a five-year period?

- It is anticipated that students will proceed through the program as part of a cohort with a new class beginning each Fall (or Winter). Given the nature of the program (the necessity of substantial clinical contact hours), a cohort of 25 students is estimated to be the appropriate number. William Beaumont Hospital is also investigating the possibility of adding additional clinical sites at other area hospitals which may influence the size of the cohort.
- Based on these assumptions, it is anticipated that 125 students will be expected to enroll over the course of 5 years.
- There are some other possibilities that might function to increase that number:
 - a. Other hospitals may want to offer their clinical facilities and staff thereby increasing the number of locations our students have at their disposal to complete their clinical training.
 - b. Professionals who are already working as Surgical Technicians but need to return to complete coursework, graduate from OCC and successfully pass the certification examination would increase the number of individuals graduating from our program.

QUESTION 9: How many students are expected to complete (graduate) from the program over a ten-year period?

- At the rate of approximately 25 students per year graduating (beginning with the second year the program is in existence), it is estimated that 225 students will graduate over a ten-year period.

QUESTION 10: What are the enrollment and degree trends at other institutions with similar programs?

- The following charts indicate the enrollment for the various community colleges over the past two academic years:

Enrollment

College	1996-97	1997-98
Delta College	111	97
Henry Ford	14	34
Kellogg	n/a	62
Lansing	31	19
Washtenaw	n/a	32

**Oakland Community College
1999 Surgical Technology Needs Assessment**

- The following chart indicates the degrees conferred at the same institutions:

Degrees Conferred

College	1996-97	1997-98
Delta College	35	12
Henry Ford	0	7
Kellogg	11	7
Lansing	15	6
Washtenaw	10	13

QUESTION 11: To what extent are there opportunities for partnerships, alliances, articulation agreements with other educational institutions as well as business?

- The opportunities for partnerships, alliances, or articulation agreements with other educational institutions is unlikely given the nature of the program.
- William Beaumont Hospital has already expressed a keen interest in partnering with Oakland Community College in establishing and running a surgical technologist program.
- To date, Henry Ford Hospital, Crittendon, Bon Secours, and St. Joseph's Hospital in Clinton Township have expressed interest in partnering with Oakland Community College.

QUESTION 12: What are the annual costs associated with the program? (Staffing, equipment, professional development, operational, etc.)

- Washtenaw Community College estimates various costs to the students for the 1999-2000 academic year.

College application fee	\$15
Registration fee (3 semesters @ \$23 each)	\$96
Tuition (37 credits [in district])	\$1820
Student fee (@ \$4 / credit hour)	\$140
Physical exam incl. lab tests	\$150
Student health insurance	\$325
Lab coat	\$25
Shoes for clinical	\$35
Textbooks	\$500
Application for certification exam	\$150
Total	\$3256

It is noted that prices range according to various conditions, such as students who are out of district, or who have health insurance. But as noted, these costs are estimates.

**Oakland Community College
1999 Surgical Technology Needs Assessment**

- WCC admits 20 students per year, so the annual cost for each cohort is approximately \$65,120.
- Staff from William Beaumont Hospital will serve as adjunct faculty, and as such, will be paid the same rate as an adjunct faculty member, which ranges from \$1662 to \$2055 per course.
- Beaumont Hospital has offered to have lab courses performed at the facility in Royal Oak, thus eliminating any costs for building lab facilities. Classroom courses require no special equipment and can be taught on any campus of OCC's.

**QUESTION 13: What are the start-up costs associated with the program?
(Equipment, training, space, renovation, etc)**

- As noted above, there seems to be no real start-up costs for OCC. Equipment and labs will be provided by Beaumont Hospital in Royal Oak. Renovation of existing classrooms is unnecessary. And space issues are equally moot.

**QUESTION 14: What is the capacity at each OCC campus to offer courses in
the program? (space, equipment, etc.)**

- Only non-clinical courses will be taught at Oakland Community College. Clinical courses will be taught at William Beaumont Hospital. Therefore, each campus has the capacity to offer general education and supportive courses.

QUESTION 15: Who will teach the courses? (adjunct and/or full-time faculty)

- All elective and general education requirement courses will be taught by Oakland Community College faculty.
- The educational staff at William Beaumont Hospital, appointed as OCC adjunct faculty, will teach the core curriculum for Surgical Technologists and the clinical internship requirements. These courses will be taught at William Beaumont Hospital in Royal Oak.

**QUESTION 16: What are the funding sources to start up the program?
Maintain the program? (general fund, grant, etc.)**

- To date, there are no outside sources to fund or maintain this program. However, there are relatively few costs to OCC, as Beaumont Hospital has offered their facilities for lab coursework. Other hospitals have expressed some interest in the same. As it stands, OCC, would not have to build lab facilities specific to surgical technicians.

**Oakland Community College
1999 Surgical Technology Needs Assessment**

QUESTION 17: What are the appropriate benchmarks to gauge the success of the program? (expected enrollment, tuition and fees, completers, etc.)

- It is difficult to gauge the success of this program, as expected enrollment will be necessarily limited. As a result, revenue will remain relatively fixed. Quality of the program becomes the appropriate gauge of success, especially given that there are relatively few programs in Michigan for surgical technicians. Quality can be measured in the number of certificates or degrees conferred and/ or the number of those completed who gain employment.

QUESTION 18: How will the program be marketed?

- This program has two avenues, certification and continuing education. Surgical technicians are asked to assist in a number of varying cases across surgical disciplines, so must maintain flexibility in job skills. OCC can offer short courses or very specific courses covering these topics. William Beaumont Hospital has expressed interest in assisting OCC in implementing (and even having their surgical technicians enroll in) these courses.

QUESTION 19: What obstacles exist in developing the program?

One potential obstacle is the consideration of flooding the market with surgical technicians. Beaumont has stated a need for some 17 technicians. Others have expressed need for technicians as well, though not nearly as many. However, within a few years, there is the risk that the market will be saturated and that hospitals will no longer require new surgical technicians.

QUESTION 20: What advantages does OCC have in developing the program?

- The first and most obvious advantage is Beaumont Hospital's desire to start a program that will produce much needed surgical technicians.
- Classes are already established.

Occupational Issues

QUESTION 1: In what industry or industries are students likely to work after taking courses in this program?

- Most graduates are employed in a hospital operating room, surgical center or private office where minor surgery is performed. According to the Michigan Occupational Information System, Surgical Technicians will be employed in the following settings:

Hospitals, public and private	89.9%
Offices of physicians including osteopaths	8.5%
Health and allied services, NEC	.7%
Offices and clinics of dentists	.6%
Home health care services	.2%
Offices of other health practitioners	.1%
Others	.1%

QUESTION 2: What are the mid and long range forecasts for this program?

According to Michigan Occupational Information System:

- Nationally, there were approximately 48,600 Surgical Technicians employed in 1996. Employment is expected to increase faster than the average for all occupations through the year 2006. The number of surgeries performed will increase due to factors such as increased population, technological advances that permit surgical intervention for more medical conditions, and widespread insurance coverage of surgical care. In addition, a shift to more outpatient settings for laser technology and fiber optics, and advances in anesthesia for outpatients will require more Surgical Technicians.
- In Michigan, there were about 1,300 Surgical Technicians employed as of 1996. Employment for Surgical Technicians is expected to grow faster than the average for all occupations through 2005; 22.5%
- An average of 50 annual openings are expected, with 30 due to growth and 20 due to replacement of Technicians who die, retire, or leave the work force for other reasons. Additional openings will occur as workers change jobs or occupations.

According to the Economic Research Institute:

- The size of this job category is small; 48,594 workers. Growth will be moderate at 31% through the year 2005.

Oakland Community College
1999 Surgical Technology Needs Assessment

- Prospects will be best for graduates of accredited educational programs and for Surgical Technicians who are certified.

QUESTION 3: What occupation or occupations are students likely to obtain after taking courses in the program?

- Students who complete the surgical technologist program at Oakland Community College and pass the certification exam required by the Association of Surgical Technologists will be prepared to work in a variety of settings as a surgical technologist (see Question 1).
- Other potential job titles within this area are discussed in Question 9.

QUESTION 4: What skills must students learn while in the program in order to gain employment or to successfully transfer?

- Surgical Technicians must learn a variety of skills that prepare them to function as part of a surgical team. They perform a wide variety of tasks prior to, during and after surgical procedures. Functions include (but are not limited to) the following:
- Before surgery:

Prepare the operating room and the instruments, equipment, and supplies that will be needed, help the other team members scrub and dress for surgery, and prepare and position the patient.
- During surgery:

Surgical Technicians pass instruments, sponges, sutures, and other sterile supplies to the surgeon and watch for breaks in aseptic techniques. They help apply dressings and prepare specimens for testing. They may hold retractors, cut sutures, and help count sponges, needles, supplies, and instruments. They may operate sterilizers, lights, or suction machines, and help operate diagnostic equipment. They may also maintain specified supplies of fluids such as blood or plasma. They must respond quickly and know procedures well so that they may have instruments ready for surgeons without being told. They are expected to keep abreast of new developments in the field.
- After surgery:

Surgical Technicians transfer the patient to the recovery room and prepare the operating field for the next surgery. With additional training, they may assist the surgeon by providing aid in hemostasis and other technical functions.

Certification exam:

- In order to qualify for certification, Surgical Technologists must pass a comprehensive examination given by the Association of Surgical Technologists. The exam covers basic sciences, surgical procedures, safe patient care, aseptic technique and environmental control, pharmacology, weights and measures, and supplies and equipment.

**Oakland Community College
1999 Surgical Technology Needs Assessment**

- In order to maintain certification, Surgical Technicians must complete 72 credits of continuing education every six years.

QUESTION 5: Are these positions (position) entry level or are they more advanced?

- Positions for Surgical Technicians are at entry level. However, other opportunities exist and are discussed in Question 9.

QUESTION 6: Are these occupations experiencing growth or are job openings due to replacement?

- See Question 2

QUESTION 7: What is the expected annual salary for these occupations?

According to Michigan Occupational Information System:

- Graduates of hospital training programs, community college programs, or Technicians certified by the Association of Surgical Technologists often earn higher salaries than Technicians without formal training or certification do.
- Salaries may vary by individual education, experience, and geographic location. Technicians may receive additional pay for being on call.
- Nationally, in 1997, annual salaries for Surgical Technicians employed by hospitals and related institutions were between \$22,000 and \$27,100 with an average of \$24,500
- Surgical Technicians employed by the federal government started at \$17,848 annually in 1998 although salaries may be higher in some urban areas.
- In Michigan (1997), the salary range was from \$22,048 to \$29,515 with an average of \$26,374.
- Surgical Technicians often receive any or all of the following: paid vacations and holidays, life, disability, and hospitalization insurance; retirement plans, sick pay; dental or optical insurance.
- The following chart indicates the contacted hospital and salary range:

Hospital	County	Salary (Range)
Botsford General	Oakland	\$29,390
Crittendon	Oakland	\$18,720 - \$27,040
St. John's Macomb	Macomb	\$25,168 - \$32,864
St. Joseph's (Clinton)	Macomb	\$27,000 - \$35,360
Bon Secours	Wayne	\$25,000 - \$38,000
Henry Ford	Wayne	\$24,960 - \$30,638
St. John's	Wayne	\$25,168 - \$32,864

**Oakland Community College
1999 Surgical Technology Needs Assessment**

According to the Economic Research Institute:

- The average starting salary for Surgical Technicians was \$23,500 in 1998. The average for all workers in this field was \$27,500 and \$30,500 with experience.
- The U.S Department of Labor reported annual salaries to range from \$ 22,000 to \$33,000 or more in 1997.

QUESTION 8: What are the minimum education and experience requirements of employers?

- Until recently, Surgical Technicians could be trained in a variety of ways. Most have been trained in hospitals, vocational-technical schools, and community colleges. On-the-job-training programs in many hospitals include classroom instruction and vary from 6 weeks to 1 year in length, depending on the trainee's qualifications. Other training programs may last from 9 months to 2 years and lead to a certificate, diploma, or Associate's degree.
- Idaho is the only state to require that Surgical Technicians be licensed. Until now, Certification has been voluntary and has been available from the Liaison Council on Certification for the Surgical Technician, an independent agency affiliated with the Association of Surgical Technologists. This agency awards certificates to those who have graduated from a formal program and have passed a comprehensive written examination.
- Effective March 1, 2000, candidates desiring to be certified Surgical Technicians (CST) must meet one of the following criteria:
 1. Have current or previous CST certification
 2. Graduate from a Commission on Accreditation of Allied Health Education Program (CAAHEP)
- Because most hospital accreditation depends on compliance with the above criteria, hospitals are highly motivated to certify their Surgical Technicians and will be unable to hire additional Surgical Technicians who are not certified.

QUESTION 9: To what extent do opportunities for advancement in the field exist?

- There is no formal line of promotion for Surgical Technicians.
- Surgical Technologists may advance by becoming first assistants, central service managers, materials managers, surgery schedulers, medical sales representatives, or educators in surgical technology training programs.
- Some Surgical Technologists may go back to school in order to become registered nurses or physician assistants.

**Oakland Community College
1999 Surgical Technology Needs Assessment**

QUESTION 10: What are the national, regional, and local job prospects?

- See question 2

QUESTION 11: Why is the program needed?

- Effective March 1, 2000, candidates desiring to be certified Surgical Technicians (CST) must meet one of the following criteria:

Have current or previous CST certification

Graduate from a Commission on Accreditation of Allied Health Education Program (CAAHEP)

- Because most hospital accreditation depends on compliance with the above criteria, hospitals are highly motivated to certify their Surgical Technicians and will be unable to hire additional Surgical Technicians who are not certified.
- Currently, only two institutions in Michigan offer training in surgical technology (Washtenaw Community College and Baker).