EDTECH 512- Online Course Design  
Merged Design Documents  
Eli Ahlquist

Project Proposal

1. What is the tentative title/topic of the course?
Cardiovascular Surgery Fundamentals for Perioperative Registered Nurses (RN).

2. Who are your learners? What age, context/grade, how many students?
This course is directed towards adult learners, who have completed the following prerequisites:
- Undergraduate program in Nursing,
- Advanced certificate in Perioperative Nursing/ RN, and
- Advanced Cardiac Life Support (ACLS).

This course will not have a maximum number of students because it will be an occupational training course provided in an asynchronous format without prescribe time limits. This will offer flexibility for working professionals to complete this course.

3. Main purpose of the course?
This course will provide advanced occupational training to nurses that require additional knowledge to work in the Perioperative sub-specialty of cardiac surgery.

4. Will the course be self-paced or facilitated? Fully online or blended? Why?
This course will be entirely self-paced and fully online.

The decision to engage these elements in the delivery of the course is based on students being employed as perioperative nurses. The time constraints and call schedule will restrict synchronous activities and allow students the ability to start and stop studying based on their schedule (personal, work, etc.). The course will be fully online to provide access to students and is in keeping with the approach to perioperative nursing education and other continuing education programs.

5. Anticipated timeline for implementation?
The implementation time frame for this course is fall semester of 2014.

6. How many total hours of learning time are required in your course?
This course will be 15 hours or 1 credit unit.
7. Are there content standards and/or course objectives that must be aligned to the course outcomes? List them if you know what they are.

This course will need to be aligned with the Operating Nurses Association of Canada (ORNAC) standards.

The course learning outcomes (LO) will need to be written to conform to Bloom's Taxonomy.

8. Adult learners: Does the course need professional development, undergraduate, or graduate credit tied to it? Do you have this available, if needed?

This course will be for professional development and offered as a continuing nursing education program through Saskatchewan Institute of Applied Science and Technology (SIAST). Employing continuing education requirements will require industrial endorsement of course curriculum. This is accomplished through a curriculum validation meeting with representatives from industry (i.e. practicing Perioperative Nurses, Operating Room Managers, Clinical Nurse Educators, Cardiac Surgeons and Certified Clinical Perfusionists).

The curriculum validation process will be trigger by SIAST internal processes for educational course approval.

9. In what platform will you host the course (mandated or your choice as designer)?

SIAST currently employs blackboard as its Learning Management System (LMS), but is currently reviewing vendors. This course will be designed in Moodle because of the availability of a mobile application from this LMS. The utilization of apps for mobile education is a requirement of many nursing students when engaged in continuing or post-basic education.

10. Is this a redesign of a face-to-face or online course, or a totally new course?

This will be a totally new course being offered. However, portions of the content will be borrowed from the “core” Perioperative Nursing Program/RN.
Problem Analysis

What problem is trying to be addressed?

The problem to be addressed is the change in policy for new perioperative nurses specializing in cardiac surgery. This sub-specialty of perioperative nursing practice has experienced a shortage of nurses resulting from staff retirements, internal churn (staff moving within hospital departments) and reduced availability of graduates from basic nursing education programs. Simultaneously, the Saskatchewan Ministry of Health has made a commitment to reduce surgical wait-times to less than three months. In response to these occurrences, operating room (OR) managers have sought to increase the number of graduates completing perioperative nursing education programs. This has resulted in a large number of inexperienced nurses practicing in Saskatchewan ORs and specifically in the cardiac surgical services.

These external pressures to increase surgical capacity have altered the policy of OR managers to rely on a lengthy orientation of “new hires/graduates”. The resulting time lag (approximately 2 years) will not allow Saskatchewan ORs to meet the government prescribed wait-times targets and necessitates a new approach to educating nurses for practice in the cardiac surgical service.

What are the symptoms of the problem?

The symptoms of this problem are delays in patients receiving timely access to surgery, cardiac surgeon frustration, and anxiety for perioperative nurses resulting in turn over off new perioperative nurses. These symptoms have necessitated a change in educational policy by OR managers for nurses entering practice in cardiac surgical service.

Evidence of these symptoms has been identified as follows:

- Surgical volume monitoring has indicated that wait-times targets are not being achieved. Additionally, scheduled cardiac surgeries have been cancelled due to delays from the preceding surgical cases that resulted from inexperienced staff lacking knowledge to coordinate surgical activities in a timely fashion.
- Anecdotal feedback to OR managers from cardiac surgeons on the performance of new staff and fatigue from orientating high numbers of new staff.
- Anxiety has been expressed in “exit interviews” conducted by Regional Health Authorities human resources departments.

This has all been communicated to myself by OR managers in Saskatchewan.

What is the root cause of the problem?

The root cause of the problem is the alteration in educational/training policies for perioperative nurses entering cardiac surgery practice. This has occurred from the external pressure to achieve mandated wait-times for surgery that required additional nurses to quickly enter the practice environment.
A further contributing factor to the change in policy is a lack of long-term health human resource planning in all areas of nursing that has created critical shortages.

**Is instruction an appropriate solution to the problem?**

Yes, instruction is an appropriate solution because it affords the opportunity to accelerate the acquisition of knowledge for perioperative nurses entering into cardiac surgical care. Instruction offers a directed approach that will build on existing knowledge and advance learner knowledge in a linear approach. This is in contrast to the existing policy to rely on orientation for opportunities to observe and learn.

Utilizing instruction will eliminate barriers to learning in an orientation approach. Examples include:

- Opportunities occur when learners are not available.
- A complex learning opportunity could occur prior to learners being exposed to simple basic/foundational experiences. This could impair the learners’ ability to acquire appropriate knowledge from the experience.
- Opportunities may not occur and the learner will not have been exposed to the knowledge.

The use of instruction through a structured approach will enhance learning and improve the acquisition of knowledge.

**Is WBI an appropriate instructional solution?**

Yes, a Web Based Instruction (WBI) model is an appropriate solution because it meets the need for improved knowledge related to cardiac surgery for perioperative nurses without disrupting the already tenuous staffing levels in Saskatchewan ORs. The use of WBI will allow learners to engage in learning on their own schedule. This flexibility will prevent disruption of all ready limited staffing levels.

A Web Based Instruction (WBI) model will meet the learning strategy for the education because the Internet offers the ability to expose students to multimedia resources necessary to learn concepts. There are several resources available via the internet that can be accessed on the learners’ schedule to enhance their learning. Further, the subject matter is predominately knowledge based content and can be easily “chunked” for learners to access online. This further allows flexibility for learners to “stop” and “start” as needed.

The learners have access to smart phones and mobile devices in their workplace. The nature of this practice environment results in unfilled “down time” that will allow learners to access the course and engage in field-based learning.
<table>
<thead>
<tr>
<th>Actuals</th>
<th>Gap</th>
<th>Optimals</th>
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</thead>
<tbody>
<tr>
<td>Nurses with basic perioperative nursing skills.</td>
<td>Lack of skills between basic perioperative nursing skills and advanced perioperative nursing in cardiac surgery.</td>
<td>Skills in perioperative sub-specialty of cardiac surgery care.</td>
</tr>
<tr>
<td>Lengthy orientation times.</td>
<td>Reduce the time for learners (perioperative Nurses) to become proficient in cardiac surgery.</td>
<td>Accelerated learning and adaptation to the cardiac surgery practice environment.</td>
</tr>
</tbody>
</table>

**Preliminary instructional goal statement:**

At the end of instruction, the participant will be able to explain the basics of cardiac surgery care for perioperative nurses.

**Why a Web Based Instruction model?**

Web Based Instruction is appropriate because students working in operating rooms will not have time to take a formal in-class course because of the critical shortage of perioperative nurses.

The nature of the instruction lends to easily modulizing content to enable students to stop and start studying as desired, thus allowing working professionals flexibility to access education (Nurses often work shifts and will work nights), and to link new learning approaches to previous education (perioperative nursing education is delivered in online format).

**Analysis of Context for WBI**

**Organizational Infrastructure:**

The Saskatchewan Institute of Applied Science and Technology (SIAST) is well equipped to offer this type of education. The college has been delivering online education and has an established “Learning Technologies” department capable of supporting development.

As a Boise State University student completing this assignment, I will have access to some of these capacities. As an example I will have access to equipment for the project including computers and software. I will also have access to the organizational culture and support from others within the institution on a limited basis. I will also have ownership of the initial development being created through this EDTECH 512 course. Subsequent revisions (if implemented) will become the ownership of the institution. Despite this organizational infrastructure, I will not have management support because this project is not identified in the institutions current strategic plan and no formal support will be provided.
Allocation and competencies of personnel:

This course will be designed by myself as part of the Boise State EDTECH 512 course. Following completion of the initial project during the summer semester, there will be access to graphic artists, web designers, web support individuals and instructors for actual delivery (if approved by SIAST). The institution delivering the course has experience in Web Based Instruction and will have resources available to assist faculty and students during the delivery of the course. Lastly, there are also administrative and technical supports available to support this course.

Learner location and technology:

The course will be offered to any student, irrespective of geography, that meets the admission criteria for the course. Learners will primarily be located in Saskatchewan and must have access to the Internet via high-speed connection. This geographic spread of students will preclude attendance for any portion of the course on SIAST campus (Wascana-Regina, Kelsey-Saskatoon, Palliser- Moose Jaw or Woodland- Prince Albert).

Further, learners will be further distributed in their time of access to the course as a result of their work schedule. Perioperative Nurses work a variety of shifts and consistency in time to access the course will be variable.

The technology requirements will be outlined for required internet speed, hardware, software, operating systems, etc. Drawing from a population of employed operating room nurses, there will also be access to internet capable smart phones in the practice environment.

Learners Analysis

General characteristics:

The learners engaging in this course will be homogeneous. The requirements of being a Registered Nurse, advanced certification in perioperative nursing and completion of Advanced Cardiac Life Support (ACLS) training will further reduce diversity. Nursing is a Caucasian and female dominated profession. There are few individuals that are male or those that have been educated internationally. These atypical subsets of the nursing profession will be less than 10%. This number is based on existing demographic data on the Registered Nurse population in Saskatchewan. These demographic trends are also valid at the national and international levels.

Finally, the learners will be drawn from a middle class income and have the financial means to access the Internet and computer resources as required.
Motivation:

The motivation of learners for this course will be strong. Learners will be interested in the content because of their chosen career path in nursing, working in the operating and further specializing in cardiac surgery care. The design for the course will focus on portability and usability to encourage student completion with a supportive strategy. The prevention of elevated rates of attrition in WBI models will be a design concern of this course.

Prior knowledge:

As indicated previously, admissions to the course will require prospective learners to have completed an undergraduate nursing degree, advanced certification in perioperative nursing and completion of ACLS training. These learners will bring substantive knowledge of current perioperative nursing and cardiac nursing care, which will provide a “higher” starting point above the line for the learning environment.

Communication skills:

The learners will possess communication skills consistent with their previous education and experience in online learning. This is ensured because the perioperative nursing education program in Saskatchewan and Western Canada are delivered online. Further, the learners will have demonstrated communication skill from academic writing required in their undergraduate education. Lastly, the three required educational foundations will have also established the needed understanding of medical and surgical jargon for communication. These characteristics also demonstrate homogeneous communication skills amongst the learners.

Technical skills:

The learners will also possess consistent basic technical skills as a result of their standardized education (undergrad, perioperative specialization and ACLS certification). These learners will have all previously engaged in online learning for their perioperative nursing education. This will enhance student performance in tasks (i.e. navigation, use of web resources, etc.) and understanding of the technical requirements of learning in a WBI model.

Abilities and disabilities:

The range of disabilities will be limited amongst the population of learners because of the licensing requirements for registered nurses. Specialization in perioperative nursing further limits potential disabilities because of the physical and sensory requirements for practice. This is evidenced by job postings requesting applicants’ proclamation that they possess the ability to stand for extend periods of time, can lift standardized weights, possess visual and auditory acuity, etc. However, there will need to be consideration given to reasonable accommodations for learners with learning disabilities or minor visual/auditory acuity.

The learners’ anxiety will be limited because of their common education and experience in health care. The platform for the LMS will also be familiar.
Other characteristics:
A level of technical jargon will be presented that could impede learners. This will be over and above that acquired through nursing education/experience and perioperative nursing education, but consistent with the practice environment that learners will be prepared to participate in following successfully completing the course.

Relevant Standards
The primary standard that will need to be addressed is the Operating Room Nurses Association of Canada (ORNAC) standards. These national standards guide the practice of all nurses in the Perioperative nursing environment. Nurses are held accountable to these standards for patient safety and functioning of OR environments.
### Task Objective Assessment Item Blueprint

**Course title:**
Cardiovascular Surgery Fundamentals for Perioperative Registered Nurses (RN).

The outcome level is based on Bloom’s Taxonomy (lowest to highest cognitive domain).

1. Knowledge
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation

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<tr>
<th>Learning Task Item and Number</th>
<th>Objective</th>
<th>Outcome Level (Bloom’s Taxonomy)</th>
<th>Assessment Item</th>
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<tbody>
<tr>
<td>Explain basic cardiac surgery care for perioperative nurses</td>
<td>Given an assigned operating room surgical slate, the learner will be able to (LWBAT) explain the basic cardiac surgery care to be provided as a perioperative nurse.</td>
<td>comprehension</td>
<td>You have been assigned to the following cardiac surgical suite. Explain the basic cardiac surgical care to be provided based on your assigned surgical slate. (comprehensive final written assignment with rubric)</td>
</tr>
<tr>
<td>1.0 Identify Cardiac Surgical Anatomy</td>
<td>When presented with a diagram of the heart, the LWBAT label the cardiac anatomy correctly 90%.</td>
<td>knowledge</td>
<td>In the graphic provided, match the terms with the correct number. (matching)</td>
</tr>
<tr>
<td>1.1 Identify structures of the heart</td>
<td>When presented with a diagram of the heart, the LWBAT to label the major structures of the heart.</td>
<td>Knowledge</td>
<td>In the graphic provided, match the major structures of the heart. (matching)</td>
</tr>
<tr>
<td>1.2 Identify Cardiac arteries &amp; veins</td>
<td>When presented with a diagram of cardiac circulation, the LWBAT to correctly label cardiac arteries and veins.</td>
<td>Knowledge</td>
<td>In the graphic provided, match the cardiac arteries and vessels. (matching)</td>
</tr>
<tr>
<td>1.3 Identify vessels harvested for bypass grafting</td>
<td>When asked to identify vessels typically harvested for bypass grafting on a diagram, the LWBAT select seven possible vessels for harvest.</td>
<td>knowledge</td>
<td>On the image provided, draw the location of vessels to be harvested for bypass grafting. (label diagram)</td>
</tr>
<tr>
<td>2.0 Identify common cardiac surgical</td>
<td>Given a list a list of common cardiac</td>
<td>Knowledge</td>
<td>Given a list of common surgical procedures,</td>
</tr>
<tr>
<td>procedures</td>
<td>procedures definitions, the LWBAT identify 90% of procedures correctly.</td>
<td>match the definition with its procedure. (matching)</td>
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<tr>
<td>2.1 Describe Coronary Artery Bypass Grafting (CABG)</td>
<td>Given a list of directed questions about CABG, the LWBAT describe how this surgical procedure is performed.</td>
<td>Knowledge Answer the short answer questions related to CABG. (short answer)</td>
<td></td>
</tr>
<tr>
<td>2.1.1 Explain pathophysiology of coronary artery disease (CAD)</td>
<td>Given a patient medical history scenario, the LWBAT to explain the pathophysiology of coronary artery disease.</td>
<td>comprehension Reviews the scenario provided and outlines the factors predisposing the patient/client to CAD then explain the effect on the heart in a brief essay. (fact based scenario with rubric)</td>
<td></td>
</tr>
<tr>
<td>2.1.2 Describe coronary artery bypass techniques</td>
<td>Given a list of different surgical techniques for CABG, the LWBAT to describe each of the techniques for CABG.</td>
<td>knowledge From the techniques listed you will briefly describe each in a short answer. (short answer)</td>
<td></td>
</tr>
<tr>
<td>2.2 Describe ventricle aneurysm repair</td>
<td>Given directed questions about ventricle aneurysm repair, the LWBAT describe how this procedure is performed.</td>
<td>Knowledge Answer the short answer questions related to ventricular aneurysm repair. (short answer)</td>
<td></td>
</tr>
<tr>
<td>2.2.1 Explain pathophysiology of ventricular aneurysm</td>
<td>Given a patient medical history scenario, the LWBAT to explain the pathophysiology of a ventricular aneurysm.</td>
<td>comprehension Reviews the scenario provided and outlines the factors predisposing the patient/client to a ventricular aneurysm then explain the effect on the heart in a brief essay. (fact based scenario with rubric)</td>
<td></td>
</tr>
<tr>
<td>2.2.2 Describe ventricular aneurysm repair technique</td>
<td>Given a list of different surgical techniques for ventricular aneurysm repair, the LWBAT to describe the techniques for ventricular aneurysm repair.</td>
<td>knowledge From the techniques listed you will briefly describe each in a short answer. (short answer)</td>
<td></td>
</tr>
</tbody>
</table>
| 2.3 Describe Aortic valve repair | Given directed questions about aortic valve repair, the LWBAT describe an | knowledge Answer the short answer questions related to aortic valve repair.
<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Competency</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>2.3.1</td>
<td>Explain the pathophysiology of aortic valve disease</td>
<td>Comprehension</td>
<td>Reviews the scenario provided and outlines the factors predisposing the patient/client to aortic valve disease then explain the effect on the heart in a brief essay. (fact based scenario with rubric)</td>
</tr>
<tr>
<td>2.3.2</td>
<td>Describe aortic valve repair technique</td>
<td>Knowledge</td>
<td>From the techniques listed you will briefly describe each in a short answer. (short answer)</td>
</tr>
<tr>
<td>2.4</td>
<td>Describe mitral valve &amp; tricuspid valve repair</td>
<td>Knowledge</td>
<td>Answer the short answer questions related to mitral and tricuspid valve repair. (short answer)</td>
</tr>
<tr>
<td>2.4.1</td>
<td>Explain the pathophysiology of MVR&amp;TVR</td>
<td>Comprehension</td>
<td>Reviews the scenario provided and outlines the factors predisposing the patient/client to mitral and tricuspid valve disease then explain the effect on the heart in a brief essay. (fact based scenario with rubric)</td>
</tr>
<tr>
<td>2.4.2</td>
<td>Describe mitral valve &amp; tricuspid valve repair techniques</td>
<td>Knowledge</td>
<td>From the techniques listed you will briefly describe each in a short answer. (short answer)</td>
</tr>
<tr>
<td>2.5</td>
<td>Describe aortic root replacement</td>
<td>Knowledge</td>
<td>Answer the short answer questions related to aortic root replacement. (short answer)</td>
</tr>
<tr>
<td>2.5.1</td>
<td>Explain the pathophysiology of aortic valve repair.</td>
<td>Comprehension</td>
<td>Reviews the scenario provided and outlines the factors predisposing the patient/client to aortic valve disease then explain the effect on the heart in a brief essay. (fact based scenario with rubric)</td>
</tr>
<tr>
<td>aortic root disease</td>
<td>LWBAT to explain the pathophysiology of aortic root disease.</td>
<td>the factors predisposing the patient/client to aortic root disease then explain the effect on the heart in a brief essay. (fact based scenario with rubric)</td>
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<tr>
<td>2.5.2 Describe aortic root replacement techniques</td>
<td>Given a list of different surgical techniques for aortic root replacement, the LWBAT to describe the techniques for aortic root replacement.</td>
<td>knowledge From the techniques listed you will briefly describe each in a short answer. (short answer)</td>
<td></td>
</tr>
<tr>
<td>3.0 Identify cardiac surgical instruments</td>
<td>Given pictures of 20 cardiac surgical instruments, the LWBAT correctly label 95% of the images.</td>
<td>Knowledge From the pictures provided, you will select the correct name for each instrument. (matching)</td>
<td></td>
</tr>
<tr>
<td>3.1 Identify general purpose instruments</td>
<td>When asked the question, “what is a category of instrument used in cardiac surgery”, the LWBAT name general purpose instruments as one of them.</td>
<td>Knowledge Answer the question of what is a category of cardiac instrument? (reflective question)</td>
<td></td>
</tr>
<tr>
<td>3.1.1 Memorize forceps</td>
<td>When asked the question, “list the forceps used in cardiac surgery”, the LWBAT to specify five forceps.</td>
<td>Knowledge List the forceps used in cardiac surgery. (self-test list with answers)</td>
<td></td>
</tr>
<tr>
<td>3.1.2 Memorize cutting instruments</td>
<td>When asked the question, “list the cutting instruments used in cardiac surgery”, the LWBAT specify ten cutting instruments.</td>
<td>Knowledge List the cutting instruments used in cardiac surgery. (self-test list with answers)</td>
<td></td>
</tr>
<tr>
<td>3.1.3 Memorize retractors</td>
<td>When asked the question, “list the retractors commonly used in cardiac surgery”, the LWBAT specify eight retractors.</td>
<td>Knowledge List the retractors used in cardiac surgery. (self-test list with answers)</td>
<td></td>
</tr>
<tr>
<td>3.2 Identify cardiac microsurgery instruments</td>
<td>When asked the question, “what is a category of instrument used in cardiac surgery”, the LWBAT name cardiac microsurgery</td>
<td>Knowledge Answer the question of what is a category of cardiac instrument? (reflective question)</td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>Question</td>
<td>Knowledge Area</td>
<td>Notes</td>
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<td>-------------------------------------------------------------------------</td>
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</tr>
<tr>
<td>3.2.1 Memorize microsurgery forceps</td>
<td><em>When asked the question, “list the microsurgery forceps used in cardiac surgery”, the LWBAT to specify four forceps.</em></td>
<td>Knowledge</td>
<td>List the microsurgery forceps used in cardiac surgery. (self-test list with answers)</td>
</tr>
<tr>
<td>3.2.2 Memorize microsurgery cutting instruments</td>
<td><em>When asked the question, “list the microsurgery cutting instruments used in cardiac surgery”, the LWBAT specify five microsurgery cutting instruments.</em></td>
<td>Knowledge</td>
<td>List the microsurgery cutting instruments used in cardiac surgery. (self-test list with answers)</td>
</tr>
<tr>
<td>3.3 identify vascular clamps</td>
<td><em>When asked the question, “what is a category of instrument used in cardiac surgery”, the LWBAT name vascular clamps as one of them.</em></td>
<td>Knowledge</td>
<td>Answer the question of what is a category of cardiac instrument? (reflective question)</td>
</tr>
<tr>
<td>3.3.1 Memorize large clamps</td>
<td><em>When asked the question, “list the large clamps used in cardiac surgery”, the LWBAT to specify four large clamps.</em></td>
<td>Knowledge</td>
<td>List the large clamps used in cardiac surgery. (self-test list with answers)</td>
</tr>
<tr>
<td>3.3.2 Memorize small or fine clamps</td>
<td><em>When asked the question, “list the small or fine clamps used in cardiac surgery”, the LWBAT specify five small or fine clamps.</em></td>
<td>Knowledge</td>
<td>List the small or fine clamps used in cardiac surgery. (self-test list with answers)</td>
</tr>
<tr>
<td>4.0 Describe basic cardiac surgery monitoring for cardiopulmonary bypass</td>
<td><em>Given a patient care scenario, the LWBAT describe cardiopulmonary bypass and the required monitoring.</em></td>
<td>Knowledge</td>
<td>From the scenario provided and list of monitors you will answer a brief essay describing cardiopulmonary bypass. (essay assignment with rubric)</td>
</tr>
<tr>
<td>4.1 Identify invasive monitors</td>
<td><em>Given a list of physiologic monitors, the LWBAT select invasive monitors from the list.</em></td>
<td>Knowledge</td>
<td>From a list of monitors, the correct monitors will be identified as required for cardiopulmonary bypass. (checklist activity)</td>
</tr>
<tr>
<td>4.1.1 Define an arterial line (blood pressure)</td>
<td><strong>Given a diagram of an arterial blood pressure line tracing</strong>, the LWBAT outline arterial line blood pressure monitoring.</td>
<td>Knowledge</td>
<td>Using a diagram, you will explain arterial lines as they relate to cardiopulmonary bypass. (exercise with rubric)</td>
</tr>
<tr>
<td>4.1.2 Define central venous line (pressure)</td>
<td><strong>Given a diagram of a central venous pressure line tracing</strong>, the LWBAT outline central venous line pressure monitoring.</td>
<td>Knowledge</td>
<td>Using a diagram, you will explain central lines as they relate to cardiopulmonary bypass. (exercise with rubric)</td>
</tr>
<tr>
<td>4.1.3 Describe arterial blood gas (ABG) monitoring</td>
<td><strong>Given a sample (normal) ABG test result</strong>, the LWBAT describe arterial blood gas monitoring.</td>
<td>Knowledge</td>
<td>Based on a simulated normal arterial blood gas results, you will describe this monitoring in a brief essay. (exercise with rubric)</td>
</tr>
<tr>
<td>4.2 Outline the principles of cardiopulmonary bypass</td>
<td><strong>Given a diagram of cardiac anatomy and a cardiopulmonary bypass circuit</strong>, the LWBAT specify/state the principles of cardiopulmonary bypass.</td>
<td>Knowledge</td>
<td>List the principles of cardiopulmonary bypass in order. (exercise with rubric)</td>
</tr>
<tr>
<td>4.2.1 Outline the establishment of cardiopulmonary bypass</td>
<td><strong>When asked the question</strong>, “list the steps in establishing cardiopulmonary bypass”, the LWBAT correctly list 95% of the steps in order.</td>
<td>Knowledge</td>
<td>Using a short answer approach list the steps in establishing cardiopulmonary bypass. (exercise with rubric)</td>
</tr>
<tr>
<td>4.2.2 Describe a cardiopulmonary bypass circuit</td>
<td><strong>Given a diagram of a perfusion/cardiopulmonary bypass circuit</strong>, the LWBAT to describe the circuit leaving the patient through to the aortic cannula.</td>
<td>Knowledge</td>
<td>Using a diagram map the circuit from the patient through the machine back to the aortic cannula. (exercise with rubric)</td>
</tr>
<tr>
<td>5.0 Summarize Intraoperative communication principles</td>
<td><strong>Given a case study</strong>, the LWBAT distinguish variants of perioperative communication.</td>
<td>comprehension</td>
<td>Answer the case-study and describe the communication occurring in a short essay. (case-study)</td>
</tr>
<tr>
<td>5.1 Paraphrase Situation Background Assessment Recommendation (SBAR)</td>
<td><strong>Given a transcript of communication in the operating room</strong>, the LWBAT give examples SBAR comments from the</td>
<td>comprehension</td>
<td>Using a transcript of communication from a cardiac surgery, highlight the portions of text that are</td>
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<tr>
<td>Clustered Objectives</td>
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<tr>
<td>1. Cardiac Anatomy Review (1.0-1.3)</td>
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<tr>
<td>2. Cardiac Surgical Procedures (2.0- 2.5.2)</td>
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<tr>
<td>3. Cardiac Surgical Instruments (3.0- 3.3.2)</td>
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<td>4. Cardiopulmonary bypass (4.0- 4.2.2)</td>
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<tr>
<td>5. Communication in the Cardiac Surgical Theatre (5.0-5.3)</td>
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</tr>
</tbody>
</table>
### Instructional Strategies Activities

#### Instructional Strategies

<table>
<thead>
<tr>
<th>Orientation to Learning</th>
<th>Instructional Strategies</th>
</tr>
</thead>
</table>
| 1. Provide an overview  | Learners will be introduced to the WBI by the following:  
  - Welcome/introduction to the course.  
  - A brief overview of the content (course description).  
  - Introduction/bio and photo of the instructor with information detailing how and when to contact the instructor.  
  - Link to the course syllabus. |
| 2. State the objectives/goals | • A brief statement describing the objectives/goals.  
  • A list of the objectives/goals for instruction with a graphic image also representing the course procedural sequence. |
| 3. Explain relevance to instruction | • A statement describing the benefits of this course to the learner’s nursing practice.  
  • Learners will be invited to share their reflection on their first experience being involved in intraoperative cardiac surgical care. |
| 4. Assist learner recall or proper knowledge, skills and experiences | • Checklist of required prior knowledge and skills.  
  • Learners will be invited to share their own brief bio- identifying their past nursing/operating room (OR) experience and any previous experience learning in a WBI course. |
| 5. Describe directions on how to start. Navigate and proceed through the unit of instruction | • Explicit directions provided describing the process of navigating the LMS.  
  • Explicit directions regarding the use of the LMS email for communications.  
  • Explicit directions directing learners on how to submit assignments.  
  • Information provided for scheduling a telephone/Skype/etc. orientation, 1:1 |
<table>
<thead>
<tr>
<th>Instruction on the content</th>
<th>Instructional strategies</th>
</tr>
</thead>
</table>
| 1. Present instructional content | • Direct instruction through presentations using text, video and supporting images.  
• Required and recommended reading lists.  
  o Text and links to webpages.  
  o Links to PowerPoint presentations.  
• Elaboration on content by using:  
  o Explanations.  
  o Examples.  
  o Graphics.  
  o Text. |
| 2. Provide learning cues | • Ask key questions for learner reflection.  
• Provide examples for student reflection.  
• Emphasize text using bold or italic text.  
• Provide diagrams/images and PowerPoint for key concepts.  
• Encourage learners to seek a mentor in their practice. Acquiring a mentor in perioperative cardiac surgical care will assist in directing learners to identify key concepts. |
| 3. Present opportunities for practice | • Exercises (questions to respond to, reflective thinking exercises, matching games, etc.)  
• Individual investigations.  
• Case studies. |
| 4. Provide feedback on practice performance | • Instructor and mentor (when possible) feedback.  
• Instructor responses to email/forum questions.  
• Instructor feedback on assignments with LMS email. |
| 5. Provide review of and close the unit of instruction | • Instructor presented summary of learning, highlighting the key points (lesson/unit wrap-up).  
• Preview of information in the next unit |
<table>
<thead>
<tr>
<th>Measurement of learning</th>
<th>Instructional strategies</th>
</tr>
</thead>
</table>
| 1. Assess performance   | • Provide grading rubrics for exercises.  
|                         | • Assign exercises.  
|                         | • Assessments completed at the completion of each unit or lesson (matching exercises, questions, matching, reflection, case study, etc.).  
|                         | • Summative final exercise. |
| 2. Advise learner of performance scores | • Return graded assignment with comments and rubric.  
|                         | • Email results using LMS.  
|                         | • Report grades using the LMS.  
|                         | • Self-reflection/evaluation, when appropriate.  
|                         | • Encourage remediation, if necessary. |

<table>
<thead>
<tr>
<th>Summary and close</th>
<th>Instructional strategies</th>
</tr>
</thead>
</table>
| 1. Enhance and enrich learning | • Summarize and review the WBI objectives/goals and learning through text and graphic(s).  
|                         | • Make recommendations for additional/future learning. |
| 2. Provide remediation for unmet objectives | • Encourage learners to review lessons/units for unmet objectives/goals.  
|                         | • LMS email questions to the instructor.  
|                         | • Provide additional learning resources.  
|                         | • Advise learners that WBI course will become inactive (date) and encourage note taking for future reference. |
| 3. Provide opportunities for retention | • Summarize learning.  
|                         | • Encourage students to share practice experience when they utilized learning. |
Motivational Strategies

The motivational framework to be used is the **ARCS model** of motivation (attention, relevance, confidence, and satisfaction).

**Orientation to Learning**

- Use short biographies and photos (instructor and learners).
- Use of engaging graphics to stimulate interest.

**Instruction to Content**

*Focusing Attention:*

- Providing novel or unusual images, videos or text-based descriptions.
- Pose reflective questions at the beginning of the lesson to create a sense of mystery for the student to reflect on during the examination of content.

*Establishing Relevance:*

- Providing examples that demonstrate how the learning will assist students to achieve their personal goals.
- Providing students the opportunity to self-evaluate their assignments/assessments (as appropriate).
- Offering “real world” examples and scenarios.
- Providing self-study activities. Offering opportunity to modify or alter assignment detail, with instructor approval, for assignments/assessments. One example is submitting a PowerPoint rather than a written assignment. Other mediums may be selected based on student familiarity.

*Instilling Confidence:*

- Provide positive and constructive feedback on assignments.
- Encouraging learners to establish a mentorship relationship in the surgical cardiac care practice environment. This will afford learners the opportunity to collaborate with a more experienced nurse. This will ultimately reduce dependence over-time as the student becomes confident and independent.
- Learners being encouraged to submit comments to the instructor on their professional progress in perioperative practice.
- Lessons/units and assignments/assessments building on previous/required knowledge and skills. As an example, learning cardiac surgical instruments from their knowledge of general surgery instruments.
Facilitating Satisfaction:

- Utilise assignments/assessments that directly incorporate newly acquired skills.
- Utilize a final summative assessment that employs the newly acquired skills.

Measurement of Learning

- The instructor will provide feedback on assignments/assessments in a positive and constructive manner.
- Feedback will be offered throughout the lessons/units.
- Informal mentorship feedback can also be provided on assignments as learners’ progress through the course.
- Diverse assessments will be used to determine student achievement.

Summary and Close

- Learners will be encouraged to keep in touch with their learning community through their preferred medium. This will provide the opportunity to share experiences in the cardiac surgical care practice environment.
- The instructor will suggest additional resources for future learning.

Other Factors to Consider

Class Size

The class size for this course will have no minimum or maximum enrollment. The institutional policies for continuing nursing education classes at the Saskatchewan Institute for Applied Sciences and Technology (SIAST) does not mandate minimum or maximum enrollments. A continuous enrollment option will be provided to allow learners the greatest flexibility to engage in continuing education. This is necessary because the course is a response to industry demand that has been created by a change in orientation policy. As such, there will initially be high numbers of students enrolling and a later reduction as equilibrium in clinical orientation rates is achieved. The maximum number of students engaging in this course based on initial needs assessment is 30 learners. Offering the course on a “cost-recover” basis will necessitate a minimum annual enrollment to cover delivery/maintenance expenses (the minimum annual enrollment is yet to be determined).

Offering the course as a self-study approach offers the required flexibility for working nursing professionals. The learners will have varying work schedules and a variety of different access times.
Also due to the introductory nature of the content, simple assignments/assessments and lower levels of interaction, a higher student to teacher ratio will be employed. Additionally, as enrollments in the course are stabilized, the facilitation of the course may be completed by a part-time instructor offering other related online education programs (i.e. Perioperative nursing RN and LPN, Medical Device Reprocessing, Principles of Ambulatory Care, etc.).

**Navigation and Learner Control**

To encourage ease of use, navigational paths will be easy to learn and locate. The elements (icons, paths and assignment links) will be prominently displayed on the website in a logical location to consistently ease learner navigation. This is intended to ensure learners time is not distracted focusing on navigating the course. Further, the learner will be able to determine their pace of completion based on their work and personal schedule. The completion time will be communicated and monitored by the instructor. All lessons/units will be open for student access at the beginning of the course start date to allow students to progress through the lessons/units at their own pace. As working professionals, learners may choose to take time off of work to complete the course and complete in an accelerated pace. This flexibility of navigation and control is essential to ensuring success.

The instructor will also communicate how to schedule a 1:1 orientation with students to ensure learner confidence. This is also essential because the learners may be engaging in studies at times when the instructor is not available (out-side of normal office hours).

**Feedback**

The feedback strategies for the course will be structured in the following ways:

- LMS email- the instructor will respond within 24 hours of student email (excluding weekends).
- A generic announcements feature will be utilized to address general questions for the entire class. This function will be generated on the learners’ next login following the announcement submission to the LMS.
- A Frequently Asked Questions section will be available in the discussions forum for students to review and post additional questions that may be of concern to others in the class.
- Learners’ may request a 1:1 appointment with the instructor at a predetermined time within the instructor’s usual office hours.

These strategies will be employed to attempt to alleviate student anxiety and manage instructor workload.
Interactivity

The course will have lower levels of interactivity because of the self-paced design. However the following strategies will be employed:

- Learner-Content
  - Text presentations.
  - Clearly organized content.
  - Provision of rich and relevant examples.

- Learner-Learner
  - Use of shared bios.
  - Encouragement of social interaction in and out of the WBI course.

- Learner-Instructor
  - Email within the LMS to individuals or the entire group.
  - Use of Skype or other preferred mediums for office hours.
  - Use of chat rooms for focused discussions (i.e. FAQ or general questions area).

- Learner-LMS
  - Use of grade books.
  - Notification to students of graded assignments.
  - LMS announcements “pop-ups” on login for group announcements.
  - A central point of access for course information.
# Gantt Chart Time line

<table>
<thead>
<tr>
<th>Tasks</th>
<th>Person Responsible</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
<th>Week 7</th>
<th>Week 8</th>
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<tbody>
<tr>
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<tr>
<td>Learning Task Map &amp; TOAB</td>
<td>Eli Ahlquist</td>
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<td>Formative &amp; Summative Evaluation Plan</td>
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<tr>
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<tr>
<td>Syllabus &amp; Modules 1-2</td>
<td>Eli Ahlquist</td>
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<td>Modules 3 - 5</td>
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<td>Implementation Plan</td>
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<td>Summative Evaluation Plan</td>
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<td>2nd Peer Review</td>
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<td>Final Project: Online Course</td>
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**Formative and Summative Evaluation Plan**

**Formative Evaluation**

**General Overview:**

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Explanation</th>
<th>Data Sources</th>
</tr>
</thead>
</table>
| **Effectiveness:** mastery of goals and success of WBI | Determine if students are able to explain the basics of cardiac surgery care for perioperative nurses. | Participants’ final grade.  
Participation in practice and review exercises. |
| **Efficiency:** Delivered in a timely or cost-saving manner | Investigate time required in using the Web delivery. | Track participant time spent online in the LMS and collect participant feedback regarding time spent reviewing content.  
Track instructor time spent online facilitating the course and “offline time” required to support the course (prep time, grading, etc.).  
Gather feedback from stakeholders about orientation time following completion of the course. |
| **Appeal:** gain and maintain learner attention and interest; usability (i.e., ease of access and use) | Review audio/visual resources for interest.  
Review content for interest.  
Review technology for ease of use and intuitiveness in navigation. | Collect participant feedback on course audio/visual resources.  
Instructor feedback on course audio/visual resources.  
Collect participant and expert reviewer feedback on interest generated through content.  
Gather feedback from participants and the instructor regarding ease of use. |
**Evaluation Matrix:**

All questions will be assessed using a Likert Scale. Below is an example of the question structure:

**Example:** Please select the number from 1-5 that best represents how achievable you feel the goals and objectives are.

a. Strongly Agree  
   b. Agree  
   c. Disagree  
   d. Strongly Disagree

<table>
<thead>
<tr>
<th>Evaluation Criteria and Categories</th>
<th>Specific Questions</th>
<th>Methods and Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effectiveness</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Goals                             | Is the information accurate?  
Are the goals and objectives clear?  
Are the goals and objectives are achievable?  
Are the goals and content appropriate for the method of delivery? | Expert review by Subject Matter Expert (SME) and designer.  
Extant data (assessment scores, practice exercises, etc.).  
Learner surveys/interviews.  
End-user review. |
| Content                           | Is the information complete and is it covering the content properly?  
Is there a match among content, objectives, activities and assessments?  
Do the activities promote learning? | Expert review by SME and designer.  
Extant data.  
Learner surveys/interviews.  
End-user review. |
| Technology                        | Do the technology applications function properly?  
Were materials easy to access by students?  
Were they easy to modify by the instructor? | Expert review.  
End-user review.  
Facilitator surveys/interviews. |
| Message Design                    | Do the supporting graphics (audio/visual) and features enhance the learning and are they without distractions?  
Are directions clear?  
Was the timeframe for the course appropriate?  
Does the text stand-alone if the graphics are unavailable? | Expert review by SME and designer.  
Learner surveys/interviews.  
End-user review. |
| **Efficiency**                    |                                                                                   |                                                                                   |
| Goals                             | Are the goals stated clearly and concisely?  
Is the purpose stated clearly and concisely? | Expert review by SME and designer.  
Learner surveys/interviews.  
End-user review. |
<table>
<thead>
<tr>
<th>Category</th>
<th>Question</th>
<th>Evaluation Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Is there congruence between the instructional goals and content?</td>
<td>Expert review by SME and designer. Learner surveys/interviews. End-user review.</td>
</tr>
<tr>
<td></td>
<td>Is the content information clearly and concisely presented? Is it appropriate for perioperative nurses? Is it timely, up to date?</td>
<td></td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Is access to the instructor provided? Do the technology applications function easily and efficiently?</td>
<td>Expert review by SME and designer. Extant data (emails). Learner surveys/interviews.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End-user review.</td>
</tr>
<tr>
<td><strong>Message Design</strong></td>
<td>Is the organization and structure of the message coherent? Are there titles and subtitles to organize the content?</td>
<td>Expert review by SME and designer. Learner surveys/interviews. End-user review.</td>
</tr>
<tr>
<td><strong>Appeal</strong></td>
<td>Are the goals relevant to the learner?</td>
<td>Learner surveys/interviews. End-user review.</td>
</tr>
<tr>
<td><strong>Goals</strong></td>
<td>Are the content information clearly and concisely presented? Is it appropriate for perioperative nurses? Is it timely, up to date?</td>
<td></td>
</tr>
<tr>
<td><strong>Content</strong></td>
<td>Is the content interesting?</td>
<td>Learner surveys/interviews. End-user review.</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>Are there any spelling, grammar or punctuation errors? Is navigation easy? Do the online resources work?</td>
<td>Expert review by SME and designer. Learner surveys/interviews. End-user review.</td>
</tr>
<tr>
<td><strong>Message Design</strong></td>
<td>Is the message and media pleasing? Is the vocabulary and tone appropriate for the content and audience? Are the viewing screens uncluttered with appropriate balance of white-space? Is the color, type-face and emphasis used appropriately and to enhance learning? Do supporting graphics and features enhance learning without distraction? Do the graphic devices function properly? Are they clear to view or hear? Does it have a good navigational design? Are the screen layouts appropriate to the content and goals?</td>
<td>Expert review by Subject Matter Expert (SME) and designer. Learner surveys/interviews.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>End-user review.</td>
</tr>
</tbody>
</table>
Primary and secondary stakeholders:

Primary Stakeholders

- Instructor/designer: Eli Ahlquist. He is responsible for the successful implementation of the course and for its content. He is also responsible for designing the course, developing the evaluation plans, and conducting formative evaluation plan.
- Learners: The adult perioperative registered nurses that are participating in the course will provide feedback on the implementation and subsequent revisions.

Secondary Stakeholders

- Learning Technologies: This department will eventually be responsible for the delivery of technical support of the course. They will be responsible for supporting student LMS issues and managing resource access issues.
- Continuing Education Consultant: This individual will be responsible for conducting assessments of the course design, delivery and effectiveness through liaison meetings with industry partners.
- Industry: They will provide feedback on the efficacy and efficiency of the program. They will also be involved in sponsoring or directing perioperative nurses to complete the course.

<table>
<thead>
<tr>
<th>Materials to be examined</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Design plans</td>
<td>Instructional content.</td>
</tr>
<tr>
<td></td>
<td>Instructional strategies and assessments.</td>
</tr>
<tr>
<td></td>
<td>Industry objectives.</td>
</tr>
<tr>
<td>Prototype and website</td>
<td>Interface.</td>
</tr>
<tr>
<td></td>
<td>Navigation features.</td>
</tr>
</tbody>
</table>

Evaluators and reviewers:

Evaluator/Designer/Instructor: Eli Ahlquist is the main evaluator. His expertise is in the subject matter (cardiac surgery care for perioperative nurses). He is also gaining expertise in WBI design and development through the Boise State University Course in Online Course Design.

Expert reviewer/ Subject Matter Expert (SME): Margaret Farley, RN will be the SME. She has extensive experience as a Nurse Coordinator for Cardiac Surgery, Clinical Nurse Educator, Perioperative Nursing Instructor, and as a Perioperative Staff Nurse in Cardiac Surgery. She will primarily review the content and provide additional feedback on the technical features of the course as it is periodically reviewed.

Expert reviewer (technical support): Wayne Udey is a faculty member and student support coordinator in the Learning Technologies department at the Saskatchewan Institute of Applied Science and Technology (SIAST). He will review the WBI to assess the technical aspects of the prototype. He has a Master’s Degree in Instructional Technology and extensive experience supporting faculty and students utilizing the Black Board Learning Management System (LMS) at SIAST.
End-user reviewer: Learners completing the course will provide feedback. These students will be surveyed as part of the final course evaluation and intermittently during the initial deliveries of the course.

When and how should the formative evaluation take place?

**Initial evaluations will occur during the design stage** with the SME. As the Evaluator/Designer/Instructor (Eli Ahlquist) develops the WBI, he will consult with the SME periodically to review the course. This feedback will be utilized to align the project with current clinical practice patterns and evidenced-informed literature related to cardiac surgical care for perioperative nurses. Periodic consultations would also occur with industry patterns to ensure the WBID aligns with the policy changes to the orientation to cardiac surgery for perioperative nurses.

There will also be **evaluations during the prototype development**. The content and technical experts along with industry partners can review the course layout, navigation as well as the instructional goals. Additionally, this will offer the opportunity to review graphics and resources to ensure that they will support learning.

**One-to-one tryouts** will occur with a minimum of three separate reviews being conducted by participants to ensure diversity in feedback. This approach will provide feedback from varying perspectives and determine that the messages and learning is appropriate for the subject matter. These reviews will also afford the opportunity for spelling, grammatical and technical errors to be identified and corrected.

Lastly, a **comprehensive review** will occur by both the SME and the Expert reviewer (technical support). This will provide a final quality assurance opportunity to ensure that all content and technical aspects are correct and functional.
**Summative Evaluation Plan**

<table>
<thead>
<tr>
<th>Evaluation Criteria</th>
<th>Main Questions</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Effectiveness</strong></td>
<td>Did the WBI meet the objective of the course?</td>
<td>Average of student assignment grades.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Student surveys (targeting self-assessed confidence in transition to practice).</td>
</tr>
<tr>
<td></td>
<td>Do industry partners believe that the course reduced orientation time?</td>
<td>Survey of industry partners requesting feedback on orientation of new perioperative nurses to cardiac surgery.</td>
</tr>
<tr>
<td><strong>Efficiency</strong></td>
<td>How much time was invested by students in the WBI?</td>
<td>Tracking of student time spent in the LMS.</td>
</tr>
<tr>
<td></td>
<td>How often did students access technical support for the course?</td>
<td>Tracking of the number of SIAST Learning Technology “call logs” for technical support related to the course.</td>
</tr>
<tr>
<td></td>
<td>How often did the students contact the instructor for clarification of content?</td>
<td>Student surveys asking specifically to quantify the amount of contact with the instructor.</td>
</tr>
<tr>
<td><strong>Appeal</strong></td>
<td>What is the rating of the course by learners?</td>
<td>Student satisfaction surveys.</td>
</tr>
<tr>
<td></td>
<td>Has interest in the course increased through industry referral?</td>
<td>Industry stakeholder surveys.</td>
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<tr>
<td></td>
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<td>Review of student employer sponsorship for education.</td>
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<td></td>
<td></td>
<td>Review of student enrollment data.</td>
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</tbody>
</table>
Through the evaluation process the course will be assessed utilizing the following resources.

**Average of student assignment grades**

Through the use of the course assignments the effectiveness of instruction will be gauged based on student performance on assignments. This information will be presented in a table similar to the one below. The data will have removed any student identifying information and be reported as a cohort or “intake”.

Note: fictitious information has been inserted for illustration.

### Table 1: Student Academic Performance

<table>
<thead>
<tr>
<th>Assignment</th>
<th>1st Intake</th>
<th>2nd Intake</th>
<th>3rd Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>85</td>
<td>90</td>
<td>70</td>
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</tr>
<tr>
<td>4</td>
<td>90</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**Student Surveys**

The students’ survey tool will utilize a questionnaire format that includes both open and closed-ended questions. Utilizing both types of questions will allow for ease of quantifying results, while balancing opportunity to collect qualitative data. The questionnaire will be distributed following the course completion and with a defined time period for submission of responses. A response rate greater than 25% will be considered the minimum threshold. Efforts will be made to increase response rates as needed (rewards). The data gathered will then be tabulated for analysis. Below is the student survey tool.
Student Survey

Congratulations on completing the Cardiovascular Surgery Fundamentals course! I would appreciate your assistance in ensuring that I am providing you with the highest quality of education by completing this survey. Your name and student ID number are not required and the feedback collected will be used to assist me in modifying the course as needed. Thank you for your cooperation and assistance- Eli Ahlquist.

The following series of questions will be answered using a Likert Scale and require that you indicate your feeling, impression or belief about the question stem. There will also be opportunity to elaborate with additional comments.

I. Course Effectiveness

1. This course was interesting to me.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

2. The course objectives were clear and achievable.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

3. The course titles and subtitles were helpful in directing my learning.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

4. I was able to complete the assignments based on the instruction.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

5. I feel that this course assisted in my transition to practice in the cardiac surgery.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

6. I would recommend this course to others becoming perioperative nurses in cardiac surgery.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

7. Please describe your experience with the course in relation to preparing to practice as a perioperative nurse in cardiac surgery.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

II. Course Efficiency

1. Before taking this course, I was familiar with computers and online learning.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree
2. The online course was easy to use.
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

3. All of the links and electronic resources worked properly.
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

4. The problems with links and resources were detrimental to my learning.
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

5. How often did you contact the instructor for technical assistance?

6. How often did you contact the SIAST HelpDesk or Learning Technologies for assistance with the technical aspects of the course?

7. Describe how well the technology worked for you. Explain if you had any difficulties and provide examples.

8. How many hours per week, did you spend on average completing course work.

9. The instructor was accessible.
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

10. I received prompt feedback within 24 hours or less.
    a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

11. The graphics and electronic resources provided in the course aided in my learning.
    a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree

III. Course Appeal

1. I enjoyed completing this course at my own pace.
   a. Strongly Agree  b. Agree  c. Disagree  d. Strongly Disagree
2. The screen layout was appropriate.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

3. The graphics and electronic resources provided in the course aided in my learning.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

4. I would like to take further continuing education courses in an online format.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

5. Additional comments or suggestions.
   _______________________________________________________
   _______________________________________________________
   _______________________________________________________
   _______________________________________________________

Thank you for taking the time to complete this survey.
Industry Survey

The industry survey tool will be similar in design to the student survey. There will be both open and closed-ended questions. Utilizing both types of questions will allow for ease of quantifying results, while balancing opportunity to collect qualitative data. But the data to be collected will be focused on effectiveness of graduates transitioning to their role in perioperative cardiac surgery. The surveys will be distributed following the completion of each intake.

The survey will be brief in attempt to alleviate survey fatigue from industry.

Industry Survey

Hello my name is Eli Ahlquist and I am the instructor for the Cardiovascular Surgery Fundamentals course at the Saskatchewan Institute of Applied Science and Technology (SIAST). I would appreciate your feedback on the graduates of this program as they transition to their new role as a perioperative cardiac surgery nurse. Your name is not required and the feedback collected will be used to assist me in modifying the course as needed. Thank you for your cooperation and assistance.

The following series of questions will be answered using a Likert Scale and require that you indicate your feeling, impression or belief about the question stem. There will also be opportunity to elaborate with additional comments.

I. Demographic data

Title:

Primary area of surgical responsibility:

How many years have you been in your current position?

II. Course Effectiveness

1. Graduates of the Cardiovascular Surgery Fundamentals course at SIAST are prepared to function in the cardiac surgery theater.
   a. Strongly Agree    b. Agree    c. Disagree    d. Strongly Disagree

2. The length of time for orientation following completion of the course is reduced.
   a. Strongly Agree    b. Agree    c. Disagree    d. Strongly Disagree

3. The graduates have an acceptable understanding of cardiac surgery anatomy.
   a. Strongly Agree    b. Agree    c. Disagree    d. Strongly Disagree
4. The graduates have an acceptable understanding of cardiac surgical procedures.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

5. The graduates have an acceptable understanding of cardiac surgery instruments.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

6. The graduates have an acceptable understanding of invasive monitoring for Cardiopulmonary bypass.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

7. The graduates have an acceptable understanding of Cardiopulmonary bypass.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

8. The graduates have an acceptable understanding of communication in the cardiac surgery theater.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

9. I would encourage other prospective perioperative cardiac surgery nurses to complete this course.
   a. Strongly Agree   b. Agree   c. Disagree   d. Strongly Disagree

10. Additional Comments or suggestions.

Thank you for taking the time to complete this survey.
Tracking of student time spent in the LMS.

Extant data will be collected from the LMS to evaluate the amount of time on average that students are spending to complete the course. This information is readily available in the LMS records and will also be de-identified to maintain student confidentiality. This data will be compared to the student survey results. This strategy will allow for triangulation of data for interpretation of results.

Estimated 3 hours per week – Student average LMS time spent in hours = \( X \)hours

Note: This figure (\( X \)) will not account for the amount of time students spent offline completing course work. However, this score will aid in triangulation of the student survey result and in establishing the average amount of time students spent completing assignments.

Tracking numbers of SIAST Learning Technology “call logs” for technical support.

Extant data from the SIAST HelpDesk call log will also be analyzed to assess the volume of technical issues experienced by students as well as to triangulate the student survey responses. This information can be further analyzed to determine issues with specific types of technology. An example of a theme from this analysis would be issues with browser compatibility in the LMS.

Student enrollment and employer sponsorship data.

This extant data will be used to assess the interest and value placed on this course by students and industry. The number of students enrolling will determine the popularity of the program. The sponsorship data will determine the net benefit or value for money that industry places on the course based on willingness to pay students tuition. Declining rates of sponsorship would not cause the course to be halted because independent student tuition could be used to fund the program on a cost-recovery basis.
### Gantt Chart of Summative Evaluation Timeline

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