Cardiovascular Technology

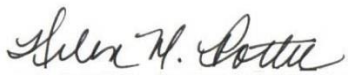
ACADEMIC PROGRAM REVIEW

Fall 2015

Cardiovascular Technology

Grossmont College

Full Time Faculty Members

Faculty	Signature	Date
Liz Barrow		**08/10/2015**
Helen Potter		**08/10/2015**
Daniel Rosen		**08/10/2015**

Part Time Faculty Members

Faculty	Specialty	Clinical Employer
Teri Dittrich	Echo	UCSD
Edgar Garcia	Vascular	Kaiser
Tina Gordon	Invasive	Sharp Chula Vista
Alex Kotsyubko	Invasive	Scripps Green
George Mesa	Echo	UCSD
Ray Schwend	Vascular	Scripps Green
Diana Tigner	Invasive	Sharp Grossmont Hospital

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SECTION 1 - BRIEF DESCRIPTION AND HISTORY OF THE PROGRAM

1.1 *Introduce the self-study with a brief department history. Include changes in staffing, curriculum, facilities, etc.*

The Cardiovascular Technology Program was founded in 1972 by Dr. Willard Dellegar. The initial curriculum was composed of a series of courses leading to an Associate Degree in Biomedical Technology which emphasized the repair of specialized medical electronic instruments. While graduates were obtaining employment in that field, feedback from employers and potential employers indicated a greater need for Allied Health Professionals who could assist physicians in the performance of sophisticated medical diagnostic and interventional tests such as cardiac catheterization and angiographic procedures, cardiac ultrasound studies and vascular duplex imaging. Dr. Dellegar enlisted the assistance of local technologists and the Naval Medical Center to revise the program, and over a two-year period the faculty was expanded to include staff from the clinical arena, and the curriculum was revised from a “Biomedical” orientation to a clinically-based, Cardiovascular Technology program.

Early CVT class photo including our echo faculty Helen Potter

As one of the original accredited Cardiovascular Technology programs in the country, we are currently accredited for three specialties: Adult Echocardiography, Non-invasive Vascular Study, and Invasive Cardiovascular Technology. In 2014 we were awarded a ten-year reaccreditation from the Commission of Accreditation for Allied Health Education Programs (CAAHEP) for all three specialties and enjoy the privilege as the only accredited program for Invasive and Vascular in the state of California, and one of two accredited programs for Adult Echocardiography in California. Being an accredited program assures our students have a seamless pathway for their national registry exams through American Registry for Diagnostic Medical Sonography (ARDMS) and Cardiovascular Credentialing International (CCI).

Adult Echocardiography is ultrasound based technology used to diagnose and evaluate patients for cardiovascular disease.

Vascular Technologists perform ultrasound and other diagnostic studies to evaluate arterial and venous obstructions, malformations, or diseases.

Invasive Cardiovascular Technologists work in the Cardiac Catheterization Lab where they assist physicians with coronary, peripheral, and electrophysiology procedures.

To enter the program, all students are placed on our waitlist (1-2 years) for the program once they complete the prerequisite courses with a grade of “C” or better in Chemistry (4 Units) and Human Anatomy and Physiology (8 Units). We encourage students to complete their GE requirements as they wait for program due to rigor of the CVT program making additional courses difficult to carry during the program. A new cohort is seated to begin each fall semester with the target number at 40 students to fully maximize our clinical placement capability which includes all three specialties. The first year of the program contains curriculum composed of a 27-unit Core Curriculum in mathematics, physics, advanced cardiovascular anatomy, physiology and pathophysiology, medical electronics and instrumentation, cardiovascular pharmacology, and clinical practicum. Following completion of their first fall semester, students select one of three specialties in the scope of practice; Invasive Cardiovascular Technology, Adult Echocardiography or Non-invasive Vascular Technology. The first year of the program is composed of campus-based lectures and labs. The second year specialty training is composed of on-campus lectures and labs, and clinical experience in local hospitals. The students complete with an AS in Cardiovascular Technology.

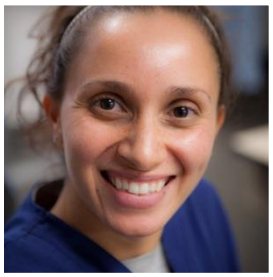
Grossmont College's Cardiovascular program provided a firm educational foundation that equipped me with skills, understanding, respect, and passion for the field.

-Joey H, Vascular Grad 2014

In June 2012, the Cardiovascular Program moved to a 52,000 square foot state-of-the-art Health and Science Complex. This building contains several classrooms and labs specifically designed for both the invasive and non-invasive students. There are echocardiography, vascular, cardiac catheterization and electrocardiogram labs. In addition, each classroom has a desktop monitor at each student seat for individualized viewing of the concept that is being digitally projected in the classroom. Laboratory classroom equipment includes EKG machines, a treadmill, hemodynamic monitoring equipment, computerized simulation for echocardiography and another for angiography, and a specialized lab holds seven ultrasound machines.

The program utilizes Perkins funding to provide tutors during “open lab” times with either second year

student tutors or graduate tutors. Students make good use of the ultrasound lab as they initially learn their new skills and once they are placed clinically they return to the lab to further their skills. This is the importance of keeping our equipment as up-to-date as possible so that our students are better prepared for the clinical setting as well as have the same machine to return to practice at school. This ultrasound equipment has multiple settings and adjustments and each brand of machine has different buttons which challenge the students to know their "knobology."



As a first year CVT student, I just wanted to let you know how valuable I think the tutors are and in particular, one tutor - Martha (pictured). As a second year student Martha freely shares her knowledge to help us better understand anything we might be having trouble with.

- Lisa G, Class 2016

Recent equipment improvements in our Invasive track have encouraged those students to also use "open lab" time because of new simulation equipment that furthers the skills the Invasive CVT students learn on campus. And once these students enter the clinical environment, they return to campus to practice skills in a safe, non-rushed environment that the clinical setting often simply does not allow due to the nature of the work in the Cardiac Catheterization Lab.

Our graduates complete the program as "entry-level" technologists and when they secure full-time employment, they can expect a starting wage at $60,000 or higher per year. Job placement varies per track, but overall the classes of 2013 and 2014 are near 75%, and the recent class of 2015 is already at 45% one month post-graduation.

Invasive Class of 2014 has 90% job placement

Program Goals

1.2 ***Appendix 1*** *contains the most recent 6-year Unit Plan for the program. From the 6-year Unit Plan, select your* ***most*** *successful and* ***least*** *successful goals and answer the following questions:*

Our most successful goal was to continue our Student-to-Student Tutoring Program (E.1.).
Our least successful goal was to build a stronger relationship with the Middle College on campus (D.1.a.).

For your most successful goal:

a) *What activities did you undertake to achieve this goal?*
   We utilize the majority of our Perkins funding to support hiring student and graduate tutors.
b) *Report and explain the data you have to verify progress toward your goal.*
   We keep sign-in sheets for the open lab times (30 min intervals) which are verified for attendance by the tutors. While we have not utilized formal evaluations for our tutors, the freely offered comments from students are that they are grateful for the support.
c) *How did the achievement of this goal help move the college forward toward fulfillment of the planning priority goals in its strategic plan?*
   Our open lab is possible because of tutor supervision and guidance for the students; thus our tutoring program definitely developed and maintained an exceptional learning environment (Goal 7).

For your least successful goal:

a) *What challenges or obstacles have you encountered?*
   When the program director assumed her new role, she was unaware of this goal and not certain of the effort that might have gone toward it. While the CVT program has been successfully giving presentations to the HASPI students over the last four years, there has not been any contact with the Middle College.
b) *Has this goal changed and why?*
   This goal could possibly be reviewed for renewed action, but unlike the HASPI students who are already interested in Allied Health programs, when other high school students have been introduced to the CVT program via career fairs, it has been found that the unique profession of the CVT is not well known and does not garner much interest.

Implementation of Past Program Review Recommendations

1.3 *Your program* ***6-year Unit Plan*** *in* ***Appendix 1*** *contains the most recent Academic Program Review Committee recommendations for the program. Describe changes that have been made in the program in response to recommendations from the last review. (Be sure to use the committee recommendations and not your own)*

1. The Allied Health & Nursing (AHN) division recently hired a general fund full-time Health Professions Specialist position that would support the CVT and OTA programs which had been staffed through the Auxiliary previously. We were fortunate to secure Kristin Stafford into that position beginning January 2015. She is an incredible asset to the division and for our programs. She is entirely pleasant to interact with and since she is frequently the “first touch” a student has with the CVT program, she leaves a wonderful impression that allows the students to understand they are welcome and appreciated.
2. In response to the program review recommendations and the difficulty hiring CVT faculty,

we were able to secure an annual $10,000 stipend for the full-time faculty with an agreed upon side letter with AFT to supplement their salaries to a more competitive level with their clinical jobs.

3. An abrupt departure of the former program director created a need before a new director could be trained. The current director moved from an adjunct position fall 2012 and is a former graduate of the program herself. Her training was supported by Dean Yaddow and a new faculty orientation program.
4. Tutors remain a critical part of our students' success and are supported with Perkins funding.
5. Curriculum is "freshened" continuously with faculty attending clinical conferences and both the lead Echo and Vascular instructors continue to work in the clinical environment in a per diem status. The Invasive track is co-taught by the program director and an adjunct faculty who also works in the Cardiac Cath Lab.
6. The expectation is set early that students must take their specialty registry exam, and in fact they are now allowed to sit for these exams before they graduate due to the accreditation status of the program. This year the CVT class of 2015 had 45% of the students pass their registry exam before they completed the program! After the two-year program is completed the director sends out a graduate survey six months after graduation. Also, frequent communication is utilized for any possible job opportunities shared with the program or faculty. Our goal is to also have a web page on our website dedicated to graduates for networking, jobs and photo galleries.
7. We have settled into our new building with minimal disruption, except for the loss of a box of video tapes of vascular studies that still irritates Don Ridgway (now officially retired).
8. We have not moved forward with changing our courses into online or hybrid format, but there is an openness to change with the current faculty. Although many aspects of what we instruct deals with hands-on skills, there does exist the possibility of some hybrid instruction. Our pharmacology course in the summer session has been a hybrid format for the last three years.
9. The division dean has pursued partnerships with various medical vendors such as Philips and GE, but the division has not yet achieved an all-encompassing business partnership with them. Through her professional clinical career in Cath Lab, the director has brought established relationships with medical vendors to support guest lectures, donated equipment, and strong working relationships for equipment purchase.
10. A thorough revision of the CVT curriculum was brought to curriculum committee during the 2013-14 school year, taking effect in the 2014-15 catalog.
11. A thorough revision is needed of the SLOs for the CVT courses. The outline for assessment was produced for the next 6-year cycle, and revisions will be completed in sync with the assessments.

SECTION 2 - CURRICULUM DEVELOPMENT AND ACADEMIC STANDARDS

*In **Appendix 2 - Catalog Descriptions**, insert copies of your catalog descriptions from the most recent college catalog (see "Courses of Instruction" section. This is the blue section). If your program has an Associate Degree program, include the relevant pages from the catalog (see "Associate Degree" section. This is the yellow section). [NOTE: Do not include your actual course outlines]*

2.1 *Review your courses outlines and explain how these outlines reflect currency in the field and relevance to student needs, as well as current teaching practices.*

The curriculum for the CVT program was thoroughly revised during the 2014 spring semester as is reflected in the 2014-15 college catalog. The curriculum revision was intended to reflect how the CVT courses were being taught currently, bring uniformity to the program outline of each specialty track, to identify the courses by specialty track with new course numbers, and to remove courses that no longer were relevant or where the subject matter was being taught in another course. The CVT courses are sequential, designed to support a two-year progression for each specialty track. All three tracks begin the program with a core curriculum in their first semester designed to support the cardiovascular knowledge necessary for all three specialty tracks. Beginning in the summer session and continuing throughout their second year, the students have a clinical assignment where they provide direct patient care under the guidance and supervision of working CVT site proctors. This clinical assignment is the foundation of seeing current real-world best practice, current technology, and being exposed to medical staff education.

2.2 *What orientation do you give to new faculty (both full- and part-time) regarding curricular expectations (i.e. SLOs and teaching to course outlines), academic standards, and department practices? How do you maintain an ongoing dialogue regarding these areas?* ***You are encouraged to use feedback from your Faculty Survey discussion.***

The CVT department is very small with the director, two full-time faculty, one part-time faculty who teaches on campus, and six part-time faculty who teach hospital-based labs. The director and one the full-time faculty are new (second year, first year of full-time status), and most of their orientation has been supported by the college's new faculty orientation process and the division dean. The program director has taken responsibility for most of the curricular expectations, but has the full support of the other two full-time faculty. The on-campus faculty are able to meet daily or weekly as needed. Each semester begins with a complete faculty meeting to follow the division meeting. There is an annual Advisory meeting which most of the faculty attend. Each specialty instructor communicates regularly with their part-time hospital-based faculty.

2.3 *Give some examples of how your department members keep their instruction (i.e. delivery, content, materials, syllabus) current and relevant to student academic and/or career needs.*

The CVT faculty is very interested in keeping their students engaged and their course content current and relevant to what the students will see in clinical practice as CVTs. All of the on-campus instructors have participated in conferences and workshops focused on student engagement, use of technology, and current clinical practice. Examples of workshops include: CCI Cardiovascular Educators' Forum, CA Perkins Joint Special Populations Regional Workshop, Creative Teaching Strategies (HWI), Effective Teaching Strategies to Improve Student Success (HWI), Use of Technology in the Classroom (HWI), Online Teaching Conference. Examples of clinical practice conferences include: Clinical Advances in Arrhythmias and Cardiovascular Disease, Cardiovascular Interventions, The St. Louis Vascular Symposium, Sharp Grossmont Hospital Heart and Vascular Conference.

2.4 *Analyze the data in* ***Appendix 3 - Grade Distribution Summary****. Identify and explain any unusual retention patterns or grading variances.*

Grade distribution is appropriate for our program. Most students tend to perform in the 80 – 95% grade range, with our lowest passing grade set in all our courses at 75%. Students are aware that academic failure removes them from the CVT program. In the CVT clinical courses (referring to CVTE 205, 215) the students most often receive a grade of "A" and that is something we're aware of and are trying to integrate a better process to assign grades including developing a clinical evaluation form which can be tied to a clinical competencies demonstrating skill

development expected at key points of the two-year program.

2.5 *Describe strategies employed to ensure consistency in grading in multiple section courses and across semesters (e.g., mastery level assessment, writing rubrics, and departmental determination of core areas which must be taught).*

The CVT program is almost entirely comprised of single sections of the courses. When two different instructors have lab sections of the same course, the same grading score sheet is used for performance testing and the same lab book is used. Each track specialty is coordinated by one instructor who oversees the development of their students for both years.

2.6 *Describe and give rationale for any new courses or programs you are developing or have developed since the last program review.*

Course numbers CVTE 115, 116, 117 are the introductory courses for each specialty given in the spring semester of the students' first year. The content of these courses were previously taught in CVTE 112 and 113. When the curriculum was reviewed and updated, these courses were created to reflect what was being taught with new course numbers to identify the track specialty.

2.7 *How are current issues (i.e. environmental, societal, ethical, political, and technological) reflected in your curriculum?*

The most rapidly changing aspect of our curriculum is to reflect technological changes seen in the clinical environment. As it is our intention to develop our students into "entry-level" ready CVTs, it is our mission to pursue current technology in the classroom labs as well as current information in our curriculum. Also, the topic of medical ethics is presented to the students before they enter their first clinical assignment. As an allied health profession program, patient-care is the focus, no matter the patient's background, social, economic, cultural, immigration status, etc. we always care for our patients.

2.8 *If applicable, provide a comparison of the retention and success rates of distance learning sections (including hybrid) and face-to-face sections. Is there anything in the data that would prompt your department to make changes? (Please see Bonnie Ripley if you need help on finding the applicable data.)*

There are no distance learning courses in our program.

2.9 *If applicable, include the list of courses that have been formally articulated with the high schools. Describe any articulation and/or collaboration efforts with K-12 schools. (Contact the Career and Technical Education Partnership and Tech Prep office for help.)*

The only collaboration we participate in is the HASPI high school tours (Health and Science Pipeline Initiative).

2.10 *Consult with the articulation officer and review both ASSIST.org and the Grossmont College articulation website. Please identify if there are any areas of concern or additional needs your department has about articulation with four-year institutions. Please describe how the program ensures that articulations with key four-year universities are current.*

There are no four-year CVT degree programs in CA.

SECTION 3 - OUTCOME ASSESSMENT

Using the course Student Learning Outcome (SLO) assessment data that you've compiled in **Appendix 1 -** Annual Progress Reports, as well as **Appendix 1 –** SLO Assessment Analyses and **Appendix 4 –** Course-to-Program SLO Mapping document**,** answer the following questions:

3.1 *What is working well in your current SLO assessment process, and how do you know? What needs improvement and why?*

As mentioned in section 1.3, our SLO assessment process, as well as the SLOs themselves, are in great need of revision. The goal will be to simplify the SLOs to tie directly to the PSLOs. We will use the Nursing Program SLO structure as our model and plan to address the course SLOs as we assess them during the next six-year cycle. The nature of our two-year program is that students may not progress if they do not successfully pass their classes with 75% or better and many of the courses have lab sections that utilize performance tests for skills taught in lab. Having a single cohort allows all the instructors to get to know the students well, and policies in place that make it mandatory for a student who has failed an exam to see their instructor, help us keep abreast of the progress of our students. We rarely have any surprises with student performance and we believe strongly in remediation with the goal of student success, but we acknowledge that we need the formal structure of SLOs to be in compliance with college policies and to have measureable data to plan program improvement.

3.2 *Using your course-level **SLO Assessment Analyses** (**Appendix 1**), this is part of your annual reporting process, and your **Course-to-Program SLO Mapping Document** (**Appendix 4**), discuss your students' success at meeting your Program SLOs.*

With our admitted need to improve in this area in terms of documented SLO assessment, the program has consistently operated with the PSLOs as our goal. Simply stated, our graduates must be “entry-level” competent by the time they graduate. The progression of their knowledge, skills and behaviors to attain this goal is assessed with written exams, multiple choice exams, performance testing, and clinical evaluation. As we assess our course SLOs and redefine them, we will focus creating clearly stated objectives with firm assessment processes that keep our students moving toward the PSLOs.

3.3 *Based on your discussion in **Section 3.2**, are there any program SLOs that are not adequately being assessed by your course-level SLOs? If so, please indicate by clearly designated modifications to your **Course-to-Program SLO Mapping** document in **Appendix 4**. Please discuss any planned modifications (i.e. curricular or other) to the program itself as a result of these various assessment analyses.*

Continuing the above narrative, the program has always had clear goals, measurable assessments, and defined competencies, but the structure/format of the SLOs are antiquated. As

we systematically assess our course SLOs, we have the substance to work with, we just need to reshape it into something functional as compared to current practice at the college.

3.4 *How has the SLO process affected teaching and learning in your department?*

Revamping our SLOs will have a positive effect upon our teaching and learning, because meaningful SLOs will tie into appropriate course objectives and daily teaching objectives, and help create a more substantial foundation for our future assessment practices.

SECTION 4 - STUDENT ACCESS

4.1 *How does facility availability affect access to your program?*

We have amazing classrooms and labs designed specifically for our program in the Health Sciences Building.

4.2 *Discuss what your program has done to address any availability concerns (i.e. alternative delivery methods, alternative scheduling sessions, off-site offerings).*

There are no availability concerns and we utilize off-site (hospital) settings for weekly evening labs with our adjunct faculty with the permission of our contracted clinical affiliates.

4.3 *Based on your analysis of the Student Survey results in **Appendix 5**, what trends did you observe that might affect student access (i.e., course offerings, communication, department and course resources)?*

Using our CVT Program Resource Survey for Students, which is the survey tool our accrediting body provides, there are usually a few responses that indicate the ultrasound scan lab needs improved equipment, that it gets too hot in the scan lab, and that we do not have adequate private storage for student belongings (a specific question on the survey – otherwise what student would think that was even an option?). We've addressed these issues the best we can (floor fans added to ceiling fans in lab, equipment purchases recently).

4.4 *What implications do these findings from 4.3 have for your program?*

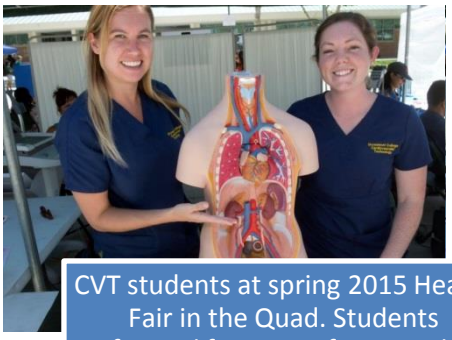
We will always attempt to address any student comments/concerns, but overall our facilities meet the needs of the program including student access.

4.5 *Based on your analysis of questions 3 through 16 in the **Appendix 5 -** Student Survey, identify any changes or improvements you are planning to make in curriculum or instruction.*

No plans to change anything at this time. Our students have always been vocal and some of the instructors actively seek student input. For example Diana Tigner, our Invasive adjunct faculty, solicits her students' input on all her final exams or creates a writing exercise focused on course improvement or what they enjoyed learning the most. As Diana's students move forward in the program they know she is interested in their input and usually offer it freely. (Careful what you ask for!)

4.6 *Discuss program strategies and/or activities that have been, can be, or will be used to promote/publicize the courses/program. Comment on the effectiveness of these strategies in light of the results of the Student Survey (**Appendix 5**)*

Our methods to promote the program include monthly "Program Preview Meetings," visits to Biology classes, the HASPI tours and any campus events we might have a presence in the quad. We need to improve our website with keywords because more and more potential students report that they find the program "online." Our student resource survey does not address effectiveness of program publicity. We link our success with publicizing the program with the length of our waitlist (currently at 1-2 years).



CVT students at spring 2015 Health Fair in the Quad. Students performed free EKGs for attendees.

4.7 *Explain the rationale for offering course sections that are historically under-enrolled. Discuss any strategies that were used to increase enrollment.*

Technically the allied health programs are under-enrolled compared to other academic departments on campus, but the limiting factor for the CVT program is the number of clinical affiliates we have; meaning the number of students are limited to the number of Cath Labs, Echo Labs, and Vascular Labs in the county. As mentioned elsewhere in this review, our ideal number is 40 students (16 echo, 12 vascular, 12 invasive) per cohort. Any future expansion of this program will depend upon creative solutions for clinical placement. For example, other CVT programs teach all the didactic up front and then send the students to clinical sites far away for whatever time period they establish; usually having the students "full-time" in the clinical setting. That works well for programs in South Dakota, but with our excessive availability of clinical sites in San Diego, we prefer having our program's combination of didactic with clinical experience concurrently. Also expanding our cohort size would most likely negatively affect job placement.

4.8 *Based on an analysis and a review of your 6-year Unit Plan **(Appendix 1)**, what specific strategies were utilized to address <u>access</u> issues of special populations such as by ethnicity, age, and gender.(Note: Asian, African-American and Hispanic are our three largest ethnic groups outside of White-Non Hispanic and should be included in this discussion. Feel free to include others as well.)*

Perhaps it is always the interesting student stories that create the image you have of each cohort. We always have single parents, career-changers, immigrants, EOPS and DSPS students. Whether these students fall into a minority of ethnicity, age or gender can vary from year to year, but reflecting on data in Appendix 10, we tend to have more female students (69%), close to age 30, somewhere near 50% white followed next by Hispanic near 25%. It might be argued that access is not the issue for the Allied Health Programs, but instead it is creating the interest in the under-represented groups, the awareness that the opportunity is there.

SECTION 5 - STUDENT SUCCESS

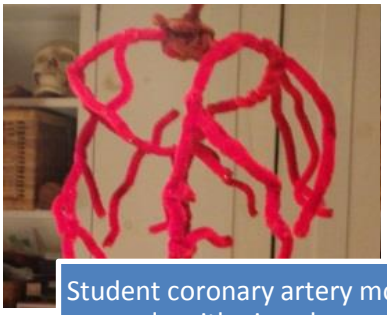
5.1 *Building on your answer to question 4.8, what specific strategies were utilized to maximize success issues of special populations (e.g. ethnicity, age, and gender). Please consult* ***Appendix 10*** *for data that will be provided to you by the research liaison. (Note as above: Asian, African-American and Hispanic are our three largest ethnic groups outside of White-Non Hispanic and should be included in this discussion. Feel free to include others as well.)*

All of our students are required to speak with their instructor if they've had a failing exam grade or performance test. All students are given the opportunity for remediation with clear goals provided depending upon the circumstance. The department informs students about student support options such as DSPS and EOPS, financial aid, and counseling; both academic and personal. ESL students are encouraged to utilize the writing center at the LTRC if needed. Again, with our students' tenure in a two-year cohort, we get to know them fairly well, and all the instructors are concerned for their students' well-being and success.

5.2 *Describe specific examples of departmental or individual efforts, including instructional innovations and/or special projects aimed at encouraging students to become actively engaged in the learning process inside and outside of the formal classroom.*

As a highly specialized program focused on cardiovascular procedures with the singular goal for the students to complete their AS degree declaring them "entry-level" technologists, our students tend to be actively engaged throughout the two-year program. There is a consistent balance between the students gaining cardiovascular knowledge with the hands-on skills necessary to perform the various procedures our students are trained for.

We also strive to keep our classes engaging by integrating group projects, case study presentations, and classroom exercises to provoke empathy for patients, critical-thinking and perspective.



Student coronary artery model made with pipe cleaners

Group project for CVTE 111 on fetal heart development

5.3 *Explain how the program collaborates with other campus programs (e.g. interdisciplinary course offerings, learning communities, community events, tournaments, competitions, and fairs) to enhance student learning inside and outside of the formal classroom.*

The AH&N division created an interdisciplinary team to encourage the departments within our division to design opportunities for our students to interact and learn from each other. This last academic year our Invasive CVT students collaborated with the Respiratory Therapy students to "teach" each other some basic information about each other's disciplines to include how

mechanical ventilation works and right heart catheterization. They concluded with a lab exercise transporting a “ventilated” patient around the outer walkways of the Health Sciences building. The Invasive students also had a lesson with some nursing students on basic IV and Foley catheter insertion and maintenance.

CVT & RT students

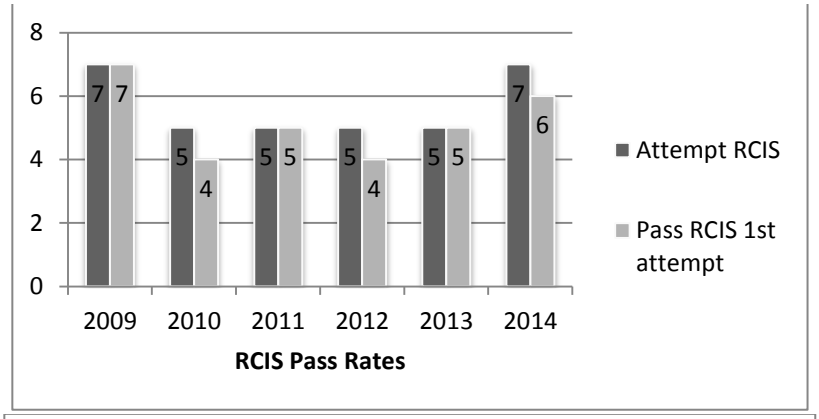
CVT & Nursing students

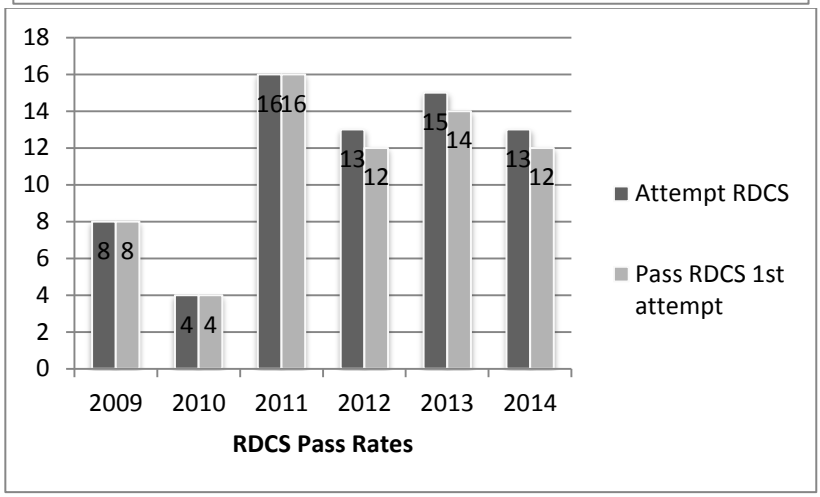
5.4 *Based on an analysis of “Reports” data (This is found on the intranet under “Reports” and will be provided to you), discuss trends in success rates, enrollments and retention, and explain these trends (e.g. campus conditions, department practices). Provide examples of any changes you made to address these trends.*

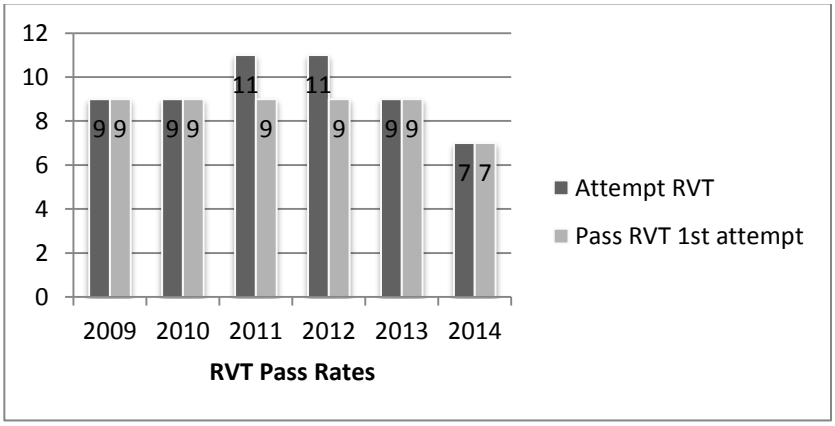
The CVT program maintains high retention and success rates. Our students have planned for this program and for the most part, come into it with the specific goal of completion. Most students wait 1-2 years to begin the program once they have submitted their application and use that time to complete GE requirements, prepare financially to work less during enrollment, and prepare overall for their commitment to succeed in the program. Most CVT students fall into the 30-49 age bracket, followed by 25-29 years; these students are highly motivated at this time in their life either as career changers or finding the career they’d been searching for. Professionalism is impressed upon the students from their orientation to their graduation and their commitment to succeeding in the program reflects their respect of the profession.

5.5 *If state or federal licensing/registration examinations govern the program, please comment on student success.*

National registry examinations exist for all three of our specialty tracks. Invasive CVT students take the RCIS (Registered Cardiovascular Invasive Specialist) exam through CCI (Cardiovascular Credentialing International). Through ARDMS (American Registry for Diagnostic Medical Sonography) the Echo students achieve their RDCS, AE (Registered Diagnostic Cardiac Sonographer – Adult Echocardiography) and RVT (Registered Vascular Technologist). The CVT program is required to report pass rates for these exams to the JRC-CVT (Joint Review Commission for Cardiovascular Technology) who reports to our accrediting body CAAHEP (Commission on Accreditation of Allied Health Education Programs).







5.6 *Referring to **Appendix 6-** Degrees and Certificates if the program offers a degree or certificate in the college catalog, explain the trends regarding number of students who earn these degrees and/or certificates.*

In 2010 the accrediting body for the CVT program (CAAHEP) updated their standards and guidelines to include the statement:

> "The post-secondary academic institution must ensure that all graduates have obtained or will obtain a minimum of an associate degree upon completion of the cardiovascular technology program/concentration(s)."

As a result in 2012 the CVT program ceased to offer a Certificate of Achievement. We require that all CVT students visit counseling during their first semester of the program to ensure they have either completed their GE requirements, or are fully aware of what they need to do to

complete the GE in order to achieve the AS degree in CVT. Beginning in spring 2015, counseling set up a satellite office in the AHN division offices to improve access for potential AHN students as well as current students.

5.7 *Describe activities your faculty has implemented to provide and maintain connections to primary, secondary and post-secondary schools.*

The program participates in HASPI tours of the allied health division. The program director has participated in career fairs at San Diego High School, Steele Canyon High School, and a neighborhood back-to-school health fair organized by assembly member Dr. Shirley Weber.

SECTION 6 - STUDENT SUPPORT AND CAMPUS RESOURCES

6.1 *Indicate how the program utilizes college support services (i.e. Learning and Technology Resources Center; learning assistance centers for English reading and writing, math, technology mall, and tutoring center; Instructional Media Services,).*

The program does not routinely send students to the LRC for learning assistance. Many of the ESL students are aware of the support for writing and have utilized the center for assistance when they have a written assignment. Our department supports hands on skills with CVT tutors and our faculty are dedicated to supporting students academically.

6.2 *Analyze the results of the **Student Survey** - **Appendix 5** and describe student utilization and satisfaction with campus resources **as it relates to your program** (i.e. availability, usage etc.).*

Using our Student Resource Survey of the 33 responses all were within the 3-5 rating (Acceptable to Strongly Agree) with the exception of these responses:

- Tutors assist me as needed: 1 - generally disagree
- Financial aid personnel assist me as needed: 2 – strongly disagree
- Academic advisors assist me as needed: 1 – strongly disagree

6.3 *Describe some of the activities for which your department has used the Institutional Research Office or other data sources.*

Annual reports to the JRC-CVT utilize data gathered from Resource surveys (Student/Faculty) as well a Graduate survey and an Employer survey. We are required to meet thresholds set by the JRC-CVT tied to that data. If thresholds are not met or there are unsatisfactory responses, we are required to address those.

6.4 *Working with your library liaison, evaluate and provide a summary of the current status of library resources (i.e. books, periodicals, video, and databases) related to the program.*

Books

The library Cardiovascular Technology area, call numbers RC 666-701, contains 20 books specifically on “Diseases of the Circulatory (Cardiovascular) System.” Additionally, the library owns eight print reference books in Cardiovascular Technology.

Print books are purchased using a complex allocation formula to ensure that departments get their “fair share” of the approximately $21,250 annual library book budget. The allocation allows for a book budget of $196.86 in Cardiovascular Technology per year.

There are also two online reference book collections that contain thousands of entries about Cardiovascular Technology. These collections, or databases, are called “Gale Virtual Reference Library” and “Literati by Credo”.

All electronic materials, whether books or journal articles, can be accessed anytime, anywhere.

Reserves
Our department makes good use of the ability to put textbooks on reserve for students in the library. Currently, CVTE 103, 113, and 213 all have materials on Reserve.

Periodicals
Most of the Cardiovascular Technology periodicals are in electronic format, within library periodical databases. This allows for keyword searching, and anytime, anywhere access. A search for the terms *heart, cardiology*, or *vascular* yielded over 800,000 journal articles from our library’s databases on these topics, and 366 full-text journals with one or more of those words in the title.

The subject-specific databases for Cardiovascular Technology are all health-related databases. The library’s health-related databases include *CINAHL Complete, Nursing Journals, Medline, College Edition Health and Life Sciences*, and others.

The library also offers some print journals in-house to students, because they are not available electronically. These include *Heart & Lung*, and the *Journal for Vascular Ultrasound*.

In addition, the library also subscribes to a number of multidisciplinary databases, including *Academic Search Premier* and *Gale OneFile*, with access to virtually tens of thousands of articles in our subject area.

DVDs, Media
There are a number of ways to access the library’s large media collection. First, the library offers a list of DVDs by subject that are in their collection. They also have access to a much larger collection of county consortium DVDs. In addition, the library has a strong cadre of databases of videos, including *Nursing Education in Video, Films on Demand, INTELECOM*, and more.

6.5 *How does the program work with the various student support services (i.e. Counseling, EOPS, DSPS) to help students gain access to courses, develop student education plans, make career decisions and improve academic success? How does your program communicate specific and current information that can be used by those student service groups?*

We attempt to have representatives from counseling, evaluations, and financial aid at our program orientation. We should consider adding DSPS and EOPS as well. We also give the students the two-page handout prepared by the college with all the student services listed.

Beginning in spring 2015, counseling set up a satellite office here in the AHN division offices, which has had great results for our students. Our program’s main concern with general counseling is that our students receive the correct information about their GE requirements being met. The CVT curriculum is very specific, sequential, and with a limited cohort, easy to follow and direct student enrollment. We impart the preference that students complete their GE before beginning the CVT curriculum if possible and we start that message at Program Preview meetings, when students drop off their applications (an email is sent with these instructions), and

at their orientation before they begin the program.

We always have a few students who enter the program as designated DSPS, and we support any needs they have which usually are for test-taking. The program has performance examinations that must be completed in our classroom labs due to the equipment and the reality that our students must be able to perform their expected job skills in a timely fashion. The department has a good working relationship with DSPS and we feel that they are supportive in helping our CVT students succeed.

6.6 *Describe how the department uses available technology to enhance teaching and learning and to communicate with students? According to the **Student Survey** in **Appendix 5**, how do students respond to the use of technology?*

Beyond the technology tied directly to student instruction (e.g., ultrasound equipment), all of our instructors utilize BlackBoard for their courses. All faculty were given an iPad to use from the college as part of the AHN division decision to push and support use of technology in the classroom. One CVT faculty is quite adept as using his iPad and uses it with the Smart Cart for classroom presentations. He will also be attempting to use Apple TV which allows the iPad user to move freely around the classroom with iPad in hand as he instructs. All CVT faculty are attempting to learn more about use of technology in the classroom and have been attending workshops on the subject. Frequent communication is needed with the CVT student cohorts which is done through email, all CVT students are required to have an email account.

6.7 *Identify and explain additional technological resources that could further enhance student learning.*

As a career technical program, our program makes an ongoing effort to acquire up-to-date technology for our students to use here on campus. This is primarily focused on ultrasound technology. Our efforts include the dean's tireless efforts to acquire grant funding, taking advantage of Perkins funding enhancements, and continuous effort through college processes such as annual activity proposals.

6.8 *Comment on the adequacy of facilities that your department uses. (e.g., does the room size and configuration suit the teaching strategies?)*

Our facilities here in the Health Sciences building are outstanding. The building was designed around the allied health programs' needs. The classrooms/labs are designed with desktop monitors and plugs for students' personal electronic devices.

SECTION 7 - COMMUNITY OUTREACH AND RESPONSE

7.1 *How does your program interact with the community (locally, statewide and/or nationally)? Describe activities.*

The CVT program has historically been involved with local health activities tied to Grossmont Hospital, such as carotid screening offered to patients through the Senior Resource Center at Grossmont Hospital. The CVT students themselves are very interested in community representation with such activities as the San Diego Heart Walk and the Eric Paredes Save a Life Foundation.

CVT students at San Diego Heart Walk 2014

The program director has been representing the interests of the CVT graduates with regulatory state practice concerning invasive CVTs and the use of fluoroscopy by attending meetings in both Sacramento and Los Angeles annually.

Advisory Committee Recommendation

Some disciplines are required to have advisory committees. Answer this question if this is applicable to your program. In **Appendix 7**, please list the organizations represented on the Advisory Committee and include samples of the meeting minutes.

7.2 *If appropriate, summarize the principal recommendations of the program advisory committee since the last program review. Describe how the program has responded to these recommendations. Include the date of last meeting and frequency of meetings. List organizations represented.*

According to our accrediting body standards the advisory committee represents the communities of interest that are served by the program which include, but are not limited to, students, graduates, faculty, sponsor administration, employers, physicians, and the public. We invite multiple members of each community of interest with the hope that attendance will include them all, which is generally achieved at the annual meeting.

The last meeting was May 14, 2015. With the history of the CVT program locally, most advisory meetings are an opportunity to update the communities of interest with programmatic improvements, with the representatives of our clinical affiliates (and employers) usually in sync with the program. At this meeting the topic of incorporating guest speakers such as physicians or vendors with new technology was discussed; possibly creating a single unit course for a lecture series. Also looking at how such a lecture event might be tied to pulling in community CVTs for Continuing Medical Education (CMEs). The group was very responsive to that being that most medical professionals are required to maintain professional education for their registry credentials.

SECTION 8 - FACULTY/STAFF PROFESSIONAL DEVELOPMENT

8.1 *Highlight how your program's participation in professional development activities including sabbaticals (listed in **Appendix 8**) has resulted in improvement in curriculum, instruction, and currency in the field.(Specifically, we ask that you include how this work has affected instruction inside or outside of the classroom- a couple of examples with details will suffice)*

Cardiovascular clinical conferences are always loaded with new findings, data driven best

practices, and new technology and procedures. One example would be a device called Impella that supports heart function by helping to move the blood from the left ventricle out the aorta to the body. At the 2014 Cardiovascular Interventions conference sponsored by Scripps Green Hospital, there were multiple presentations of case studies, research results, and innovative products by Abiomed, the company that makes the Impella device. This information will be added to the subject of left ventricular support devices in the CVTE 222 curriculum.

At the St. Louis Vascular conference attended by Dan Rosen, he learned new techniques for evaluating dialysis access grafts which he implemented into his curriculum for CVTE 253. He also was introduced to an emerging practice and technique for evaluating the hemodynamics of the closure of venous valves and how it pertains to venous insufficiency. He's added that information into CVTE 100, 117 and 223, to include technique taught in the ultrasound lab.

No sabbaticals were taken by CVT faculty.

8.2 *Describe any innovative professional development activities your program has created.*

We use professional development week each semester to have our department meeting with all faculty (part time who are not on campus). Opportunities for professional development are shared with the faculty at that time, and financial support has been given in the past for both full time and part time faculty to attend workshops/conferences.

As for creating professional development activities to share outside our department or division, we have not done so.

The AHN division has had speakers at our flex week division meetings who have addressed new technology, teaching strategies, interdisciplinary activities, disabled students and we have a veteran specialist speaker on PTSD scheduled for fall 2015.

8.3 *Describe how your faculty shapes the direction of the college and/or the discipline (e.g., writing grants, serving on college/district committees and task forces, Academic Senate representation, presenting at conferences, etc.).*

Current representation:

Liz Barrow: Academic Senate, Chairs & Coordinators, Planning & Resources (formerly on Facilities, Bookstore).

Helen Potter: Student Grievance

Dan Rosen: just completing first year full time – a committee in his near future!

SECTION 9 - STAFFING TRENDS AND DECISION-MAKING

This table will be completed by the Research Liaison-Please feel free to consult.

	Fall 2008	Fall 2009	Fall 2010	Fall 2011	Fall 2012	Fall 2013
# of FT faculty	4	4	4	4	2	2
# of PT faculty	9	9	9	9	13	15
Total Full Time FTEF (*Reports data)	4.699 (4.366)	4.716 (3.833)	4.733 (3.600)	4.166 (3.599)	1.383 (1.200)	1.267 (1.134)
Total Reassigned Time	0.6375	0.6375	0.6375	0.6375	0.9375	1.1171
Total Part Time FTEF	1.267	1.6	1.75	1.75	3.333	3.666
Total FTEF	5.966	6.316	6.483	5.916	4.716	4.933
FT% of Total FTEF	78.8%	74.7%	73.0%	70.4%	29.3%	25.7%
Total Earned WSCH	2033	2139	2247	2073	2204	1978

Utilizing the data in the table **and the results of your Faculty Survey discussion**, answer the following questions:

9.1 *Explain any observed trends in terms of faculty staffing and describe changes that have occurred (i.e. reassigned time, accreditation issues, expertise in the discipline, enrollment trends).*

The CVT department had an abrupt departure by the full time Invasive Instructor (Dan Sullivan) in Fall 2011 and he was replaced by an emergency hire (Liz Barrow) for the semester. The full time Vascular instructor (Don Ridgway) had a planned retirement for June 2012, and there was an unexpected retirement of the program director (Andy Biondo) also in June 2012. The program director position was filled in September 2012 (Liz Barrow) and the full time Vascular instructor position was filled in August 2014 (Dan Rosen).

With the Vascular instructor position filled, in Fall 2014 we had 57.5% FT% of total FTEF. The Invasive instruction is currently covered by three part time faculty and the program director. With the recent increase in RT for the program director, the department will be pressed to seek a replacement for the full time Invasive instructor.

9.2 *Discuss part-time vs. full-time ratios and issues surrounding the availability of part-time instructors.*

As mentioned above, our fall 2014 ratio rose to 57.5% with the addition of the Vascular instructor Dan Rosen. While the program's structure will always utilize part time instruction for hospital-based labs (non-patient care), ideally the college based instruction and classroom labs will be taught by a full time instructor for each specialty track of the program (echo, invasive, vascular) in order to maintain the integrity of the curriculum.

9.3 *List and describe the duties of classified staff, work study and student workers who are directly responsible to the program. Include a discussion of any trends in terms of classified staffing and describe changes that have occurred (i.e. duties, adequate coverage, funding issues).*

The CVT program is supported by Kristin Stafford, Health Professions Specialist. She also supports the Occupational Therapy Assistant (OTA) program. Kristin's position was originally an auxiliary position and she started in August 2013. In October 2014 it was determined that Kristin's position should be classified and not auxiliary, so Kristin applied for the new classified position and was found to be the best applicant and was hired as a classified employee in January 2015. Her duties include managing both the CVT and OTA programs, accepting applications, fielding emails and phone calls, keeping records on all current OTA and CVT students (approximately 100 students each year), tracking student data for the division, sending clinical paperwork to the clinical sites for each student, and supporting the other programs (Nursing, Respiratory Therapy, Ortho Tech) as needed.

Kristin is an outstanding person. She is completely capable and very good at her job. As mentioned before she is often the "first touch" for any student interested in the CVT or OTA programs and her kindness and efficiency is of the highest caliber.

9.4 *How are decisions made within your program? What role do part-time faculty and/or classified staff play in the department decision-making process?*

Being a small department and having faculty that work well with each other, departmental decisions are easily made between all of us. Major program decisions are brought to the Advisory Board and/or the division dean for consultation. There is strong mentorship within the AHN division beginning with the dean, Debbie Yaddow, and many experienced instructors such as Lisa Maloy and Tom Oertel. The other program directors, Peggy Wells (RT) and Christi Vicino (OTA) have also helped the CVT program director tremendously.

Part time instructors are often solicited for their opinions with decisions about equipment purchases, such as part time Vascular instructor Ray Schwend pointing out the need for the program to make certain the next ultrasound equipment purchase was a Philips IU22, a particular machine found in most Vascular Labs in San Diego. We were able to secure that purchase at the end of the 2014-15 fiscal year.

SECTION 10 - FISCAL PROFILE AND EFFICIENCY

Refer to **Appendix 9 – Grossmont WSCH Analysis** (provided by the research liaison) for efficiency. **Appendix 3** has the sections and enrollment. **Appendix 12 –** Fiscal Data: Outcomes Profile (provided by the research liaison) also has enrollment information.

10.1 *Analyze and explain any trends in enrollment, numbers of sections offered, average class size and efficiency.*

The CVT program maintains a waitlist of 1-2 years allowing for consistent enrollment of 40-45 students per year. Our enrollment is defined by the limitations of our clinical placements with 40 students (16 echo, 12 vascular, 12 invasive) able to be placed comfortably in our local clinical sites. This level of enrollment has been steady over the last decade.

10.2 *Analyze the Earned WSCH/FTEF data in **Appendix 9-** Grossmont WSCH Analysis. Explain trends for your overall program and for specific courses over a five-year period.*

Attrition in our courses usually occurs during a cohort's first semester (fall) due to either self-withdrawal or academic failure. Failure in a single course removes the student from the program entirely. The program attempts to maintain efficiency with 100% maximum enrollment.

10.3 *Using **Appendix 11-** Program Data Elements and **Appendix 12 -** Fiscal Data: Outcomes Profile, analyze and explain the cost per FTES of the program in relation to the earned WSCH per FTEF*

The Allied Health programs all have a higher cost due to the small class sizes. While the CVT program's limiting factor is the number of clinical placement sites, the benefit to our students is reflected in their readiness and success with their national registry exams and job placement (see Appendix 10) with most students starting wages at $60,000+/year. In June 2012 Don Ridgway retired which most likely reflects the dramatic drop in unrestricted funds reported 2012-13. (His replacement was hired academic year 2014-15, Daniel Rosen.) The use of restricted funds, such as grants, has helped to offset the overall cost of the program to the college.

10.4 *If your program has received any financial support or subsidy outside of the college budget process, list the amount of any outside resources and how they are being used.*

The CVT program receives Perkins funding which is used primarily to pay for tutors (student and graduate-"professional") to enhance student success in the ultrasound skills open lab as well as to support learning in the classroom labs for all three tracks. Dean Yaddow was successful in securing a grant from the Grossmont Healthcare Foundation for the purchase of an ultrasound machine in 2011 and 2014. Full time faculty receive a stipend supported by the agreed upon side letter with AFT to supplement hard to fill positions such as the allied health professions.

SECTION 11 – SUMMARY AND RECOMMENDATIONS

11.1 *Summarize program strengths and weaknesses in terms of:*

- *teaching and learning*

It's actually an exciting time for us in the CVT program as instructors. Two of us are new and are very motivated to not only to "teach" but to learn how to effectively teach. We

have excellent mentors within our division and a dean who is motivated to help her faculty. Between all the CVT faculty, we have been attending different workshops to improve instruction techniques, utilize technology, and learn about student engagement. The dean has given us clearly defined goals as instructors to help guide our improvement. She is very understanding of how it is to move from "industry" or our hospital jobs to the world of the community college and has offered productive criticism and guidance.

- *student access and success*

The CVT program remains strong in this area. All students who meet the application requirements are admitted to the program. Access is only limited by the number of clinical placements we can make in the San Diego healthcare community, but this also seems to balance with job placement locally. Retention has improved with a renewed commitment to assure interested and incoming students understand the rigor of the program so they enter with eyes wide open. Also, as we have implemented policies to assure students who are in academic jeopardy are given remediation plans as soon as possible, and students with skills development are directed for tutoring, we will continue to maintain retention and success.

More than 90% of our students who attempt their specific registry exam, pass on the first attempt. With both Echo and Vascular, student participation in taking registry exam is 90-100% per each graduating class. Invasive remains at 50-75% participation due to many employers not requiring the RCIS credential, but the program promotes the registry exam in accordance with our accrediting body standards. We will continue to strive to meet our accrediting required thresholds which are 60% minimum for credentialing examination success and 70% minimum for credentialing examination participation (see Appendix 10).

- *implementing and executing the department's vision and mission statement*

Vision Statement
Academic excellence through student-centered learning in a creative, supportive environment.

Mission Statement
The Cardiovascular Technology Department will provide competency-based education which links theoretical, professional, and ethical concepts to clinical practice in order to prepare graduates for the world of work and life-long learning.

The CVT program does meet the vision statement. The goals of the mission statement are being met, but there is always room for improvement. The department is working on restructuring the competency-based education into a contemporary and functional format by improving clinical evaluation tools, competency check-off processes and performance exams, course objectives tied to competency as well as knowledge, and new tools to track clinical experience tied to competency check-offs.

- *fiscal stability*

The department budget is supplemented with Perkins funding, occasional grants for equipment purchases, and student fees to supplement equipment the students take home to build hands-on skills. Most often the needs of the department are met with these funds. Faculty are supported for professional development including clinical conferences. With the technology we need to support student instruction and to reflect what students will find in the clinical world, the CVT department will always be faced with fiscal challenges, but with planning and perseverance we will continue to find ways to fund equipment purchases.

11.2 *Describe any concerns that have affected or that you anticipate affecting the program before the next review cycle. These may include items such as increases or decreases in number of full-time and adjunct faculty, sections offered, and growth or decline of the program.*

As discussed in 9.1, the department needs to replace the full time Invasive faculty position which is currently covered by four different part time instructors. Each specialty track in the program needs a lead full time faculty person to maintain the integrity of the instruction the students receive in the program. The release time increase will affect the teaching load of the program director, who currently instructs 55% of the Invasive courses.

There is the awareness that the program needs a "healthy" waitlist to assure full enrollment each year. While the list will wax and wane it is imperative that the program remains vigilant with recruitment of potential students.

There is potential for growth in the CVT program. There is an accredited fourth specialty track that could be developed for Electrophysiology. The program has discussed at Advisory meetings what might be accomplished in other areas of growth such as creating certificates for second specialties, offering a combined echo and vascular track, or looking into certification for unique skills such as using ultrasound for musculoskeletal studies. Such undertakings would require additional personnel or reassigned time.

11.3 *Make a rank-ordered list of program recommendations. These recommendations should be clearly based on the information included in Sections 1 through 11 of this document. You may include recommendations that do not require additional fiscal resources.*

1. Replace full time Invasive instructor.
2. Continue to assess and revise SLOs.
3. Improved clinical assessment tool.
4. Website improvement to include easy navigation, program statistics such as job placement, graduate page to support networking and job placement.
5. Plan for ultrasound equipment replacement.
6. Adjunct faculty resource book.
7. Establish a fourth specialty track in Electrophysiology.

APPENDICES

Appendix 1

Six-Year CVT Department Plan from 2009
2009 CVT Program Review Committee Summary Evaluation
CVT TracDat Report

Six-Year Department/Unit Plan

Department/Unit Name Cardiovascular Technology Month/Year **11/09**

Instructions:
This Six-Year Unit Plan details the goals that you have for your department/unit in a number of areas, as well as the strategies that you plan to implement to achieve those goals. Each year, this plan will inform and be implemented through the activities in your various annual action plans. In addition, this plan is organized so that the work eventually accomplished in the areas listed can be used to complete key sections of your next program review document.

Please fill out all portions as completely as possible. Some units in student and administrative services will need to indicate where the sections do not apply.

THE DEADLINE FOR SUBMITTING THIS COMPLETED SIX-YEAR DEPARTMENT/UNIT PLAN TO YOUR DEAN IS FRIDAY, NOVEMBER 5th, 2009.

Remember, for your Six-Year Plan, you are developing your department/unit goals and strategies (activities) for each of the areas listed as plan sections on the following pages. Your goals and activities may support one or more of the following College Strategic Planning Priority Goals that are provided here for your reference:

Student Access
Goal 1: Better serve students in historically under-served populations
Goal 2: Respond to changing community needs

Learning and Student Success
Goal 3: Provide an Exceptional Learning Environment to Promote Student Success
Goal 4: Promote Student Success for Historically Under-served Populations
Goal 5: Promote Student Success for Historically Under-prepared Populations

Robust Fiscal and Physical Resources
Goal 6: Promote Institutional Effectiveness
Goal 7: Develop and maintain an exceptional learning environment
Goal 8: Maximize Revenue from Traditional and Non-Traditional Sources

Economic and Community Development
Goal 9: Enhance Workforce Preparedness
Goal 10: Develop Innovative Partnerships That Meet Long-term Community Needs

Value and Support of Employees
Goal 11: Promote Employee Success

BACKGROUND

A. Please provide a list of your most recent program review recommendations.

B. If applicable, please provide a list of any advisory committee recommendations.
The May 2009 meeting of the CVT Advisory Committee Meeting included a briefing on the current process of established Student Learning Outcomes and the committee was provided the opportunity to review the current draft of the document. The following recommendations were made:

The section of the curriculum on patient communication will be strengthened to include patient contact and identification, and explaining any procedure to be performed. More instruction will be provided in the review and interpretation of ultrasound studies and writing the Technologist Findings for the physician.

C. If applicable, please provide a list of any certification/accreditation recommendations. The last accreditation self-study and site visit occurred in September 2004. The committee awarded an unprecedented 10-year accreditation to the program, along with numerous commendations for excellence. There were no recommendations for changes or improvement.

PLAN SECTIONS

In each section, answer the questions as completely as possible. **Remember that you are discussing long-term plans for the next six years.**

D. Community Outreach/Response

1. What is/are your six-year goal(s) in this area?
    a) Build a stronger relationship with the Middle College on campus
    b) Develop a presentation for the Health Pathway High School students

Briefly explain:
Why each 6-year plan goal was chosen (include any supporting data)
The Middle College students are typically academically advanced and have not been tapped for inclusion in many of the campus programs.
These students are highly motivated and anxious to enter Health Professions.
How each 6-year plan goal above supports the college strategic planning priority goals Economic and Community Development: Goal 9:
What strategies/activities would you undertake to accomplish each 6-year plan goal?
Contact the "Middle College" on campus
Conduct general and track-Specific tours of the Cardiovascular Program
How will you demonstrate that you have accomplished each 6-year plan goal (be sure to include how date will be collected/assessed). On the first-year student survey,add a section on how the student first found out about the CVT program that would list "Open House" or Orientation.

E. Student Success and Support

1. What is/are your six-year goal(s) in this area?
    a) To continue our Student-To-Student Tutoring Program

Briefly explain:
Why each 6-year plan goal was chosen (include any supporting data)
Funding cuts continues to threaten this keystone of the CVT program
How each 6-year plan goal above supports the college strategic planning priority goals Robust Fiscal & Physical Resources: Goal 7

What strategies/activities would you undertake to accomplish each 6-year plan goal? Continue to advocate the funding for hourly tutors

How will you demonstrate that you have accomplished each 6-year plan goal (be sure to include how data will be collected/assessed)?
Funding would be continued in this area

F. Department/Unit Resources and Development

1. What is/are your six-year goal(s) in this area?
Present Scripps Healthcare a proposal to subsidize their employees who want to advance their career by pursuing a CVT degree or certificate.

Briefly explain:
Why each 6-year plan goal was chosen (include any supporting data). The Salary Bridge Grant from Grossmont Healthcare District expires at the end of this academic year. If Scripps Healthcare agrees to this proposal, the current faculty will continue to receive their stipend.

How each 6-year plan goal above supports the college strategic planning priority goals Economic and Community Development: Goal 10

What strategies/activities would you undertake to accomplish each 6-year plan goal?
We would partner with the Nursing and Respiratory Tech Programs to present a package deal to Scripps Healthcare.

How will you demonstrate that you have accomplished each 6-year plan goal (be sure to include how data will be collected/assessed)?
After the two year commitment has expired, there is an option to continue the partnership with Scripps for another two years.

G. Faculty/Staff Professional Development

1. What is/are your six-year goal(s) in this area?
We would like our faculty to attend medical and academic conferences and symposia at least annually, funded by the GCCC District.

Briefly explain:
Why each 6-year plan goal was chosen (include any supporting data). Conferences and meetings introduce fresh new ideas in the medical arena, and introduce different methodologies and strategies on the academic side.

How each 6-year plan goal above supports the college strategic planning priority goals Value and Support of Employees: Goal 11

2. What strategies/activities would you undertake to accomplish each 6-year plan goal?
We would encourage management to include budget items for conference attendance as part of employee benefits. As part of an accredited program, faculty are required to be registered within their specialty. Maintenance of that registry would be supported by the institution.
3. How will you demonstrate that you have accomplished each 6-year plan goal (be sure to include how data will be collected/assessed)?
All faculty will maintain a current registry for the entire six years of this plan. That will include full-time and adjuncts.

H. Curriculum Development

1. What is/are your six-year goal(s) in this area?
Pursuant to the recommendations of the CVT Advisory Committee:

a) The section of the curriculum on patient communication will be strengthened to include patient contact and identification, and explanation of any procedure to be performed.
b) More instruction be provided in the review and interpretation of ultrasound studies and writing the Technologist Findings for the physician.

Briefly explain:

a) Why each 6-year plan goal was chosen (include any supporting data)
The majority of the Advisory Board consists of experienced physicians and technologists who see the results of our training on a daily basis.

b) How each 6-year plan goal above supports the college strategic planning priority goals
Economic and Community Development: Goal 9

2. What strategies/activities would you undertake to accomplish each 6-year plan goal?
We will focus on these areas at the appropriate time in the curriculum.

3. How will you demonstrate that you have accomplished each 6-year plan goal (be sure to include how data will be collected/assessed)?
We will verify that these goals have been achieved by modifying our "Clinical Supervisor Evaluation of the Student" to include a question on patient interaction, and one on report writing.

I. Staffing Needs

1. Please explain your projected needs for staffing (include data to support your needs)? The CVT Program needs a full-time, experienced Health Professions Specialist.

J. Student Outcomes
If you are in an instructional area and have not done so already, complete your six-year student outcome assessment plan by going to

http://www.grossmont.edu/student_learning_outcomes/SL0%20Spreadsheet%20home.htm, clicking on your department link, and completing the spreadsheet. **NOTE: the student outcome plan spreadsheet was due online by October** 2nd.

THE DEADLINE FOR SUBMITTING THIS COMPLETED SIX-YEAR DEPARTMENT/UNIT PLAN TO YOUR DEAN IS FRIDAY, NOVEMBER 6th, **2009.**

CARDIOVASCULAR TECHNOLOGY
GROSSMONT COLLEGE
Fall, 2009

Cardiovascular Technology
PROGRAM REVIEW COMMITTEE
SUMMARY EVALUATION

The Program Review Committee commends the department for:

The legacy of JoAnn Faulise for her commitment and service to students and the CVT program. JoAnn was the longtime administrative assistant to the CVT program who passed away in 2008.
Being the only accredited CVT Program at a California community college offering a comprehensive program of three tracks: Invasive, Noninvasive, and Vascular Technology.
Obtaining grants from Grossmont Healthcare District to help pay faculty, support the program, and acquire the necessary equipment.
Continued marketing of the program, including but not limited to, frequent tours, weekly orientations, and career fairs which enhances community awareness and maintains demand for the program.
Having prominent physicians on the advisory committee and using advisory committee recommendations pertaining to curriculum, equipment etc.
Commitment to academic excellence as evidenced by standardized grading sheets, peer tutoring program, connecting with students, outstanding testing results, and 100% employment for graduates who wish to work in the CVT field.

The Committee recommends the following:

Recruit and hire a replacement for the CVT Health Professions Specialist.
Based on current market salary research, work with the faculty bargaining unit to develop a vocational educational pay scale to make salaries competitive.
Begin training a member of the CVT faculty to assume the Program Coordinator position.
Continue the provision of qualified tutors to assist students in the acquisition and refinement of basic and advanced skill in diagnostic testing.
Maintain the curriculum current to the scope of practice.
Explore ways of encouraging students to maintain contact with the program and to participate in national registry exams.
Complete the transition and physical relocation of the department into the new science building.
Develop selected components of the CVT curriculum into online or hybrid format.
Continue and expand existing program linkages to the medical equipment industry in order to acquire state of the art instrumentation to be used in lab practicum.
Submit curriculum modification proposals for those courses that have not been reviewed by the Curriculum Committee in more than four years or curriculum deletion forms for those courses that have not been offered in the last three years.
Use student-learning outcome data for continued course and program improvement.

Cardiovascular Technology

SCHOOL YEAR	FALL SEMESTER		SPRING SEMESTER		COST/FTES	**COMMITTEE RECOMMENDATION**
	WSCH/FTEF	% of MAX WSCH	WSCH/FTEF	% of MAX WSCH		
01-02	285	68.35	265	58.2	$4192	
02-03	360	83.52	329	74.1	$3717	
03-04	366	91.10	339	79.0	$3610	
04-05	385	92.47	357	81.8	$3181	
05-06	357	87.13	346	75.6	$3436	
06-07	426	95.12	343	76.8	$2992	
07-08	351	85.82	308	69.4	$3961	
08-09	334	85.43	299	68.7	$4200	
09-10	339	84.25	314	72.7	$4249	

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College President Chair Cardiovascular Technology Chair Academic Program Review Chair

Comprehensive Unit Report

Grossmont College

Planning (AHN) - Cardiovascular Technology

Planning (AHN) - Cardiovascular Technology

1a. (AA/L Sec2) - Curr Dev & Acad Stds - New: 2013-14: Able to meet with Curriculum Committee in spring 2014 and get approval for curriculum changes which were reflected in 2014-15 College Catalog and Class schedule.
2012-13: Over the past year the CVTE program has updated its course outlines. As a result, the entire curriculum has been reviewed and there are plans to update the curriculum this year for fall 2015.

1b. (AA/L Sec2) - Curr Dev & Acad Stds - Oth Prog: 2013-14: After seating CVT class of 2016, wait list for program dropped to 80. Uncertain if this is a reflection of reduced sections of prerequisite courses during past "lean" years, but with active recruitment in increased number of sections of Anatomy and Physiology in Biology department, we hope to increase wait list to 120.
2012-13: As a Division, the Dean purchased IPADS for every full time faculty member to enhance the classroom presentations and engage students. This has allowed students to view images in 3 D through the use of applications for the IPAD.
In working with the Biology faculty, BIO 142 (2 Units) was substituted with BIO 141L (1 Unit) so that more sections of physiology lab could be added while staying within the budgetary constraints.

2. (AA Sec3) - Outcome Assessment - Prog Improve: 2013-14: Tutoring for ultrasound skills is still supported. Faculty agreed that it be mandatory for any student who scores less than 75% on a quiz, exam or performance testing must speak with instructor and a remediation plan will be created per individual situations. Overall attrition for CVT class of 2014 was 22%. CVT class of 2015 attrition for first year was 27%; primary reason for students dropping were personal reasons (8 students) with only 4 students academically failing.
2012-13: Over the past year Program attrition has been examined. As a result, increased tutoring hours has been added to the Program to promote student success. Last year the attrition rate was 10% which is down from previous years of 20% or more.

3. (AA/L Sec4) - Student Access: 2013-14: Any student who has met the prerequisite requirements will have their application accepted for the CVT Program. Our waitlist is date/time stamped and that creates the sequence of invitation to the program.
2012-13: The CVTE program currently maintains a waiting list. Access is available for any student meeting the Program per -requisites. The CVTE program historically admits students from diverse ethnicities and backgrounds. Disproportionate impact is not an issue with the CVTE program.

4. (AA/L Sec5) - Student Success: 2013-14: We purchased 25 CDs with material to prepare our ultrasound students to pass a national exam on Sonography Principles and Instrumentation (SPI exam) that they must pass to continue to their specialty registry exam. We invested in signature graduation stoles to identify our CVT graduates at commencement to instill program pride and celebrate student success.
2012-13: This past year the Program has purchases I Clickers to enhance student engagement and learning. In addition, tutors have been hired which include Professional Experts and student tutors to promote student success.

5a. (AA/L Sec6) Stud Supp & Resources - Technology: 2013-14: The CVT program is constantly challenged to maintain current with equipment and technology. This year through another grant we were able to obtain a new ultrasound system.
2012-13: The purchase of the latest technology is always a concern for the Program. Through grants and the use of VTEA funds the purchase of equipment and technology has been a challenge but manageable. This past year the Program purchased a echocardiology machine which does vascular imaging as well. In addition the Program was able to purchase an simulator for the invasive track. The echo track was also able to purchase a mannequin with simulated cardiac abnormalities.

5b. (AA/L Sec6) Stud Supp & Resources - Facilities: 2013-14: Removing single desks and replacing with tables and chairs in one of our classrooms had created a better learning environment for the AHN division students (room 34-170).
2012-13: We have the good fortune of being in state-of-the-art facilities.

5c. (AA/L Sec6) Stud Supp & Resources - Collabor: 2013-14: At CVT program orientation, representatives from Financial Aid and Evaluations were present to offer guidance for the incoming students. An outreach effort from Biology led to a few biology students volunteering to be "patients" for the CVT students learning to use ultrasound; something we hope to improve upon.
2012-13: Over the past year the Division has worked with the Biology Department in the creating on a 1 unit Physiology lab Bio 141L. This course will replace BIO 142 which is 2 units and allow the Biology Department to offer more one unit sections thus providing increased access for CVT students to the prerequisite.

6. (AA/L Sec7) - Community Outreach/Response: 2013-14: The program preview meetings continue on a monthly basis for anyone interested in the CVT program, the director and two students represented the program at San Diego High School's medical career health fair, the program was represented by students at the annual Heart Walk, the program director has traveled to Sacramento to work with state regulators to change regulation interpretation to support future California jobs for CVT Invasive graduates.
2012-13: The Department holds monthly information sessions that are open to the general public for individuals that may be interested in the cardiovascular field. In addition, the Department has participated in high school outreach through on campus tours with high school students. The program director and a graduate represented the program at a back to school community health fair sponsored by state assemblywoman Shirley Weber in September.

7a. (AA/L Sec8) - Fac/Staff Prof Dev - Currency: 2013-14: Two full-time instructors were able to attend Cardiovascular Technology Educators Forum again, all full-time instructors have attended conferences specific for their clinical specialties, two part-time instructors were able to attend a professional Echosonography conference with professional development funds. All clinical conferences support new practice in the field of cardiovascular care. One full-time faculty attended a conference on student engagement.
2012-13: Both full-time instructors in CVTE has attended a yearly conference for cardiovascular technology educators. In addition faculty has participated in professional development in the areas of teaching and learning and time management.

7b. (AA/L Sec8) - Fac/Staff 2013-14: The department coordinator serves on Academic Senate, Facilities Committee, Planning and Resource Committee,

Prof Dev - College: and member of Council of Chairs and Coordinators. One full time faculty is on Student Grievance Committee and the other has just started as a full time instructor (FA 2014).
2012-13: Both the one full time faculty and the Department Coordinator serve on a College committee and have input into College governance. The Department Coordinator serves on Academic Senate, Facilities Committee, and is a member of the Council of Chairs and Coordinators .

8. (AA/L Sec9) Staffing Trends: 2013-14: This year we did secure a full-time replacement for our Vascular Track instructor. We were also able to find an exceptional part-time faculty person for the Invasive track as a replacement position.
2012-13: Last year a full-time vascular faculty retired. Going forward to the faculty staffing committee, this replacement position ranked ninth. Unfortunately the College was not able to fund this many faculty postilions. The plan is to continue to request this position this year as well. At this point there is only one full time faculty member and the Coordinator who has .6375 release time. Prior staffing levels were four full-time faculty. It is critical to get this full-time faculty position replaced to maintain the integrity and quality of the CVTE program.

9. Job Placement Rates: 2013-14: (2013 Graduates)
Invasive 64%, Non-Invasive 55%, Vascular 73%
2012-13: (2012 Graduates)
Invasive 75%, Non-Invasive 64%, Vascular 36%

Department/Unit Goal: Professional Development

Promote professional development for faculty.

Goal Origin: Department Recommendation/Goal
Start Date: 08/19/2013
Goal Status: Active

Activities

Activity Description and Rationale	Measurable Outcome(s) (req.)*	Implementation Plan (req.)*	Active
Encourage faculty to attend professional development events which promote improved instruction and/or clinically focused conferences that support clinical development. **Strategic Planning Goal Best Addressed (req.)*:** Goal 11**: EMPLOYEES - Promote Employee Success	1-2 faculty to attend professional development activity/conferences per year.	Division Dean announced to all division faculty the opportunity with VTEA funding and professional development funds to support faculty professional development.	Yes

Planning Results

Result	Follow up Action	Follow-Up	Results From
Goal 11**: EMPLOYEES - Promote Employee Success - 09/26/2014 - 2013-14: Two adjunct faculty were supported to attend National Echocardiography conference, one full time faculty was supported to attend CVT Educators Forum. **Progress:** Ongoing			2013-2014

Department/Unit Goal: Student-to-Student Tutoring

Provide program tutoring to reduce attrition and promote student success.

Goal Origin: Department Recommendation/Goal
Start Date: 08/19/2013
Goal Status: Active

Activities

Activity Description and Rationale	Measurable Outcome(s) (req.)*	Implementation Plan (req.)*	Active
Provide tutoring through the use of professional experts in each track and provide student tutors to assist students in classroom activities. **Strategic Planning Goal Best Addressed (req.)*:** Goal 03**: SUCCESS - Provide an Exceptional Learning Environment to Promote Student Success	Reduce program academic attrition by 2%.	Prior attrition rate for Class of 2015 cohort was 9.3% due to academic failure. Tutoring will help assist students in the application of concepts and lead to less academic attrition.	Yes

Planning Results

Planning Results			
Result	**Follow up Action**	**Follow-Up**	**Results From**
Goal 03**: SUCCESS - Provide an Exceptional Learning Environment to Promote Student Success - 09/26/2014 - 2011-12: first year attrition due to academic failure: 12.9% 2012-13: first year attrition due to academic failure: 4.2% 2013-14: first year attrition due to academic failure: 9.3% **Progress:** Ongoing			2013-2014

Department/Unit Goal: Curriculum Modifications

Pursuant to the recommendations of the CVT Advisory Committee, update and develop appropriate curriculum.

Goal Origin: Department Recommendation/Goal
Start Date: 01/20/2014
Completion Date: 05/16/2014
Goal Status: Completed

Activities			
Activity Description and Rationale	**Measurable Outcome(s) (req.)***	**Implementation Plan (req.)***	**Active**
1. Renumbering CVTE courses to improve understanding with program sequence, track specialties, colleague software conflicts with prerequisites and corequisites, and overall restructure of numbering sequence. 2. Removal of courses with obsolete content, shifting content still necessary for program into other courses so program still meets standards and guidelines set by our accrediting body (CAAHEP). **Strategic Planning Goal Best Addressed (req.)*:** Goal 06: RESOURCES - Promote Institutional Effectiveness	1. Students able to register for courses without conflicts flagged by Colleague. 2. Students who reenter program for second specialty will not be repeating courses and therefore will not need to petition to repeat courses. 3. Reduce the overall units required of major area of study from 52-54 to 47.	Make appointment with Curriculum Committee.	Yes

Planning Results			
Result	**Follow up Action**	**Follow-Up**	**Results From**
Goal 06: RESOURCES - Promote Institutional Effectiveness - 06/06/2014 - Able to secure time with Curriculum Committee in spring 2014 and all course additions/modifications/deletions approved by committee and met board packet deadline for May. Implementation began with 2014-15 College Catalog and Class Schedule. Students were able to register with only one glitch. Anticipate future registrations without incident. **Progress:** Completed			2013-2014

Department/Unit Goal: Development of improved Clinical Evaluation Tool

Revision of clinical evaluation tool with goals of tool being more descriptive of students' current skill level, descriptive measures that help sort the evaluations to be comparable to all students, specific for each specialty track, and electronic format for ease of use.

Goal Origin: Department Recommendation/Goal
Start Date: 11/03/2014
Goal Status: Active

Activities			
Activity Description and Rationale	**Measurable Outcome(s) (req.)***	**Implementation Plan (req.)***	**Active**

Activities			
Activity Description and Rationale	**Measurable Outcome(s) (req.)***	**Implementation Plan (req.)***	**Active**
Utilize division resources to evaluate other allied health program clinical evaluation tools. Redesign our CVT program clinical evaluation tool for our program's specific skills and requirements. **Strategic Planning Goal Best Addressed (req.)*:** Goal 03**: SUCCESS - Provide an Exceptional Learning Environment to Promote Student Success	Completion and implementation of improved clinical evaluation tool.	1. Complete new evaluation tool during fall 2014 semester. 2. Implement use of new tool spring 2015 semester. 3. Evaluate results of evaluation tool.	Yes

Planning Results			
Result	**Follow up Action**	**Follow-Up**	**Results From**
No Planning Results reported.			

Department/Unit Goal: Replacement of aging ultrasound equipment

The CVT program must maintain equipment that is technically current and reflects what the students utilize in their clinical sites.

Goal Origin: Department Recommendation/Goal
Start Date: 08/18/2014
Goal Status: Active

Activities			
Activity Description and Rationale	**Measurable Outcome(s) (req.)***	**Implementation Plan (req.)***	**Active**
Persistent effort to find funding to purchase up-to-date ultrasound equipment for instruction of Cardiovascular Technology students. Our students' success will be hindered if they are instructed on older equipment in the campus ultrasound skills lab that is not operating at full capacity. When they enter their clinical learning sites, if they are not familiar with or understand how to operate the current technology being utilized in the community, then they will not succeed as Cardiovascular Technologists. This particular point of our students not having knowledge of current equipment is often noted in their clinical evaluation forms. As of today, we have acquired two newer ultrasound machines which meet current technology standards. We have five that are out of date, not fully functional, with two of them on the verge of becoming unusable despite preventative maintenance. Ideally we would have 8 functional machines to support specialized lab instruction for Cardiovascular Technology students. **Strategic Planning Goal Best Addressed (req.)*:** Goal 03**: SUCCESS - Provide an Exceptional Learning Environment to Promote Student Success	Acquisition of an up-to-date ultrasound machine each year.	The division Dean is vigilant in her effort to secure grant funding, we will pursue any potential state funding for equipment, and continue to fully utilize VTEA funding (department allocation is too small to support cost of ultrasound equipment).	Yes

Planning Results			
Result	**Follow up Action**	**Follow-Up**	**Results From**
No Planning Results reported.			

Appendix 2

Catalog Descriptions

Cardiovascular Technology (cvte)

Cardiovascular Technology 100 +
Physical Principles of Medicine I
2 units, 2 hours lecture
Prerequisite: *A "C" grade or higher in Biology 140 and 141 and 141L or 142 or Biology 144 and 145 or equivalent.*
Corequisite: *CVTE 101 and 102 and 103.*
A course in the mathematics and physical principles of medicine specifically applicable to the field of Cardiovascular Technology. Designed for students enrolled in the Cardiovascular Technology Program, the course includes studies in the use of mathematic formulas and physics used to evaluate the hemodynamics of the cardiovascular system.
Transfers to CSU

Cardiovascular Technology 101 +
Cardiovascular Physiology I
4 units, 4 hours lecture
Prerequisite: *A "C" grade or higher in Biology 140 and 141 and 141L or 142 or Biology 144 and 145 or equivalent.*
Corequisite: *CVTE 100 and 102 and 103.*
A study of the anatomy, physiology, structural relationships, and pathophysiology of the human heart and vascular system. Designed for students enrolled in the Cardiovascular Technology Program, the course will concentrate on specialized terminology, cardiac anatomy, electrocardiography, and hemodynamics.
Transfers to CSU

Cardiovascular Technology 102 +
Medical Instrumentation I
3 units, 2 hours lecture, 3 hours laboratory
Prerequisite: *A "C" grade or higher in Biology 140 and 141 and 141L or 142 or Biology 144 and 145 or equivalent.*
Corequisite: *CVTE 100 and 101 and 103.*
An integrated course in medical electronics and instrumentation for the cardiovascular technology student. The course will emphasize the concepts of electrical safety, the clinical application of electronic instruments and devices used in cardiovascular medicine, and the characteristics, recording, and measurement of bioelectric signals.
Transfers to CSU

Cardiovascular Technology 103 +
Laboratory Practicum and Proficiency Testing I
2 units, 1 hour lecture, 3 hours laboratory
Prerequisite: *A "C" grade or higher in Biology 140 and 141 and 141L or 142 or Biology 144 and 145 or equivalent.*
Corequisite: *CVTE 100 and 101 and 102.*
A practicum course designed to insure competency in the basic skills required in the clinical practice of cardiovascular technology. Students acquire skills in the performance of indirect blood pressure measurement, ultrasound imaging of the heart and vascular system, and calculation of specified hemodynamic parameters.
Transfers to CSU

Cardiovascular Technology 104 +
Electrocardiographic Theory
3 units, 3 hours lecture
Corequisite: *CVTE 105.*
A study of the electrocardiographic theory and principles required to perform basic 12-lead electrocardiograms. Instruction in EKG graph interpretation to identify cardiac rate, axis, arrhythmias, myocardial infarctions and ischemia.
Transfers to CSU

Cardiovascular Technology 105 +
Electrocardiographic Technique
2 units, 6 hours laboratory
Corequisite: *CVTE 104.*
A course in the practical application of the technique for recording and interpreting standard electrocardiograms. Students will perform and interpret electrocardiograms in an on-campus laboratory setting and be assigned to lab

rotations in local clinical facilities for a portion of the semester.
Transfers to CSU

Cardiovascular Technology 106 +
Advanced Electrocardiographic Studies
5 units, 4 hours lecture, 3 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 104 and 105 or equivalent.*
Corequisite: *CVTE 108*
A study of the theory, clinical application and hospital administrative requirements associated with cardiac arrhythmia and heart block recognition; and their correlation to cardiac stress testing, pacemaker evaluation, ambulatory EKG recording and electrocardiographic telemetry.
Transfers to CSU

Cardiovascular Technology 107 +
Introduction to Clinical Practicum I
1 unit, 1 hour lecture
Corequisite: *CVTE 100 and 101 and 102 and 103.*
A course to introduce the first year/ fall semester CVTE student, enrolled in the CVTE Program, to Invasive Cardiology, Adult Echocardiography and Vascular Technology in the hospital/ clinical environment. The course is designed to acquaint and educate the student with the day-to-day procedures and specific job requirements and descriptions for each track specialty. This course will provide the needed information and clinical observations to enable them in selecting a subspecialty within the field of Cardiovascular Technology.
Transfers to CSU

Cardiovascular Technology 108 +
Advanced Cardiac Monitoring
2 units, 2 hours lecture
Prerequisite: *A "C" grade or higher in CVTE 104 and 105 or equivalent.*
Corequisite: *CVTE 106*
A study of the advanced cardiac arrhythmias that Cardiac Monitoring Technicians are required to know before employment can be obtained in this field. Special attention will be given life-threatening arrhythmias along with techniques for distinguishing between aberrant rhythms and life-threatening arrhythmias.
Transfers to CSU

Cardiovascular Technology 109 +
X-Ray Physics and Radiation Safety
3 units, 3 hours lecture
Prerequisite: *A "C" grade or higher CVTE 100 and 101 and 102 and 103.*
Corequisite: *CVTE 116.*
A course providing advanced study in medical electronics and instrumentation which focuses on imaging technologies, utilized in invasive cardiology. Emphasis will be placed upon radiation safety, fluoroscopic regulations, fluoroscopy techniques, the x-ray imaging chain, x-ray physics, cardiovascular angiographic projections, coronary angiographic techniques, optical principles, intravascular ultrasound and Doppler techniques. Additional emphasis is placed on fluoroscopic data collection, analysis and interpretation of clinical patterns.
Transfers to CSU

Cardiovascular Technology 110 +
Physical Principles of Medicine II
3 units, 3 hours lecture
Prerequisite: *A "C" grade or higher in CVTE 100 and 101 and 102 and 103.*
Corequisite: *CVTE 115 or 117.*
This course is a continuation of Cardiovascular Technology 100 with emphasis on the physical characteristics of sound, ultrasound, and Doppler ultrasound as utilized in medical diagnostic testing. The course explores the physics involved in the formation, propagation, and reflection of sound and ultrasound, the characteristics of the various types of transducers used in echocardiography and vascular duplex scanning, and the mathematical techniques employed in the use of ultrasound to measure and calculate hemodynamic function indices.
Transfers to CSU

Cardiovascular Technology 111 +
Cardiovascular Physiology II
4 units, 4 hours lecture
Prerequisite: *A "C" grade or higher in CVTE 100 and 101 and 102 and 103.*
Corequisite: *CVTE 113.*
A continuation of Cardiovascular Technology 101, Cardiovascular Physiology I, with emphasis on electrocardiographic arrhythmia recognition, the anatomy, physiology, and pathophysiology of specified congenital heart disease, the structure and function of the arterial, venous, capillary and pulmonary circulations and the techniques for measuring and/or calculating specified hemodynamic function indices.
Transfers to CSU

Cardiovascular Technology 113 +
Introduction to Clinical Practicum II
1 unit, 1 hour lecture
Prerequisite: *A "C" grade or higher in CVTE 100 and 101 and 102 and 103.*
Corequisite: *CVTE 111.*
This course prepares the Cardiovascular Technology student for the clinical setting with topics such as HIPAA, infection control, radiation safety, patient transport, basic patient care, professionalism in the healthcare setting and expectations of the Cardiovascular Technology student during clinical assignments.
Transfers to CSU

Cardiovascular Technology 114 +
Cardiovascular Pharmacology
2 units, 2 hours lecture
Prerequisite: *A "C" grade or higher in CVTE 110 and 111 and 112 and 113.*
This course introduces the concepts of drug classification, pharmacokinetics, delivery systems, drug interactions and dosage. A survey of all drug categories will be presented, but emphasis will be placed on cardiac and vascular, and thrombolytic medications. Drugs administered during cardiovascular procedures is the focus of this course.
Transfers to CSU

Cardiovascular Technology 115 +
Introduction to Adult Echocardiography
4 units, 2 hours lecture. 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 100 and 101 and 102 and 103.*
Corequisite: *CVTE 110*
An introduction to Adult Echocardiography. This course is in specialized techniques and cardiovascular theory to develop cognitive and manipulative skills in the clinical operation of specified ultrasound instrumentation, and in the performance of adult echocardiography.
Transfers to CSU

Cardiovascular Technology 116 +
Introduction to Invasive Cardiology
4 units, 2 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 100 and 101 and 102 and 103.*
Corequisite: *CVTE 109*
An introductory course in Invasive Cardiology with instruction in specialized techniques used in Invasive Cardiology and designed to provide lecture and laboratory practicum necessary to develop cognitive and manipulative skills in the clinical operation of specified cardiovascular instrumentation, and in the performance of diagnostic tests in cardiac catheterization procedures.
Transfers to CSU

Cardiovascular Technology 117 +
Introduction to Vascular Technology
4 units, 2 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 100 and 101 and 102 and 103.*

Corequisite: *CVTE 110*
An introduction to vascular diagnostic sonography. This course covers specialized techniques of noninvasive testing of the human vascular system. It is designed to provide lecture and laboratory instruction in cognitive and psychomotor skills required for the clinical operation of ultrasound and other diagnostic instrumentation, as well as in the rationale, performance, and interpretation of diagnostic tests used in the vascular lab.
Transfers to CSU

Cardiovascular Technology 121 +
Clinical Practicum I: Adult Echocardiography
2 units, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 110 and 115.*
This laboratory course is the first student opportunity to perform cardiovascular diagnostic testing in a clinical setting under the guidance of an experienced Cardiovascular Technologist. Basic patient interaction, routine patient care, diagnostic testing in a clinical setting, preliminary findings and the physician's final report will be introduced. The diagnostic proficiencies learned in the classroom and practiced during the first-year lab sessions with the adult echocardiography specialists will be applied to situations in the hospital, clinic or doctor's office setting.
Transfers to CSU

Cardiovascular Technology 122 +
Clinical Practicum I: Invasive Cardiology
2 units, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 109 and 116.*
This laboratory course is the first student opportunity to perform cardiovascular diagnostic testing in a clinical setting under the guidance of an experienced Cardiovascular Technologist. Basic patient interaction, routine patient care, diagnostic testing in a clinical setting, preliminary findings and the physician's final report will be introduced. The diagnostic proficiencies learned in the classroom and practiced during the first-year lab sessions with the invasive cardiology specialists will be applied to situations in the hospital setting.
Transfers to CSU

Cardiovascular Technology 123 +
Clinical Practicum I: Vascular Technology
2 units, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 110 and 117.*
This laboratory course is the first student opportunity to perform cardiovascular diagnostic testing in a clinical setting under the guidance of an experienced Cardiovascular Technologist. Basic patient interaction, routine patient care, diagnostic testing in a clinical setting, preliminary findings and the physician's final report will be introduced. The diagnostic proficiencies learned in the classroom and practiced during the first-year lab sessions with the vascular technology specialists will be applied to situations in the hospital and clinic setting.
Transfers to CSU

Cardiovascular Technology 199
Special Studies or Projects in Cardiovascular Technology
1-3 units, 3-9 hours
Prerequisite: *Consent of instructor.*
Individual study, research or projects in the field of cardiovascular technology under instructor guidance. Written reports and periodic conferences required. Content and unit credit to be determined by student/instructor conferences and/or division. May be repeated for a maximum of nine units.

Cardiovascular Technology 221 +
Diagnostic Procedures I: Adult Echocardiography
5 units, 3 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 115.*
Corequisite: *CVTE 231*
A course in specialized techniques using echocardiography for testing and evaluation of cardiovascular disease. Lectures will stress the performance and analysis of cardiac ultrasound findings to cardiac pathology and the measurement and calculation of specified hemodynamic parameters. The classroom laboratory provides advanced

instruction in the topics and performance of diagnostics tests in echocardiography. The theory, calibration, operation and clinical application of specified diagnostic medical instrumentation will be applied. Hospital based laboratory sessions are conducted in non-invasive cardiac labs in local hospitals with advanced instruction in two dimensional, m-mode, color-flow, cardiac Doppler, transesophgeal and stress echocardiography.
Transfers to CSU

Cardiovascular Technology 222 +
Interventional Procedures I: Invasive Cardiology
5 units, 3 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 116.*
Corequisite: *CVTE 232.*
This course provides advanced study in medical electronics and instrumentation, focusing on devices utilized in invasive cardiology. Specialized techniques and interpretation of physiologic data obtained during diagnostic and interventional procedures performed in the Cardiac Catheterization Lab will be emphasized. Classroom and hospital based lab sessions will focus on coronary, peripheral and electrophysiologic procedures.
Transfers to CSU

Cardiovascular Technology 223 +
Diagnostic Procedures I: Vascular Technology
5 units, 3 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 117.*
Corequisite: *CVTE 233.*
A course of instruction in the specialized techniques of noninvasive testing of the human vascular system and the evaluation of vascular pathophysiology. Lectures will stress the performance and analysis of vascular ultrasound scanning, spectral analysis and the interpretation of scanning and non-scanning modalities for vascular testing. The classroom laboratory provides advanced instruction in the topics and performance of diagnostics tests in vascular technology. The theory, calibration, operation and clinical application of specified diagnostic medical instrumentation will be applied. Hospital based laboratory sessions are conducted in vascular laboratories in local hospitals, with instruction in techniques of duplex scanning of the cerebrovascular and lower-extremity vasculature.
Transfers to CSU

Cardiovascular Technology 225 +
Extended Experience in Clinical Practicum
1 unit, 3 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 231 or 232 or 233.*
A course designed to provide students with a continuation of their clinical experience. This course will provide continued application of invasive, noninvasive and vascular diagnostic techniques and clinical instruction. Students are assigned to local clinical facilities where they participate in the performance of cardiac catheterization procedures, echocardiography and vascular studies as determined by clinical specialty.
Transfers to CSU

Cardiovascular Technology 231 +
Clinical Practicum II: Adult Echocardiography
5 units, 15 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 121*
Corequisite: *CVTE 221*
A laboratory course providing clinical practicum with emphasis on the calibration and operation of medical instrumentation used in the non-invasive labs in local hospitals and clinics with which the CVTE Program is affiliated. The performance of specified diagnostic tests, calculation of hemodynamic data, and professional performance in the clinical environment will be stressed.
Transfers to CSU

Cardiovascular Technology 232 +
Clinical Practicum II: Invasive Cardiology
5 units, 15 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 122*

Corequisite: *CVTE 222*
A laboratory course providing clinical practicum with emphasis on the calibration and operation of medical instrumentation used in the Cardiac Catheterization Labs in local hospitals with which the CVTE Program is affiliated. The performance of specified diagnostic tests, calculation of hemodynamic data, and professional performance in the clinical environment will be stressed.
Transfers to CSU

Cardiovascular Technology 233 +
Clinical Practicum II: Vascular Technology
5 units, 15 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 123*
Corequisite: *CVTE 223*
A laboratory course providing clinical practicum with emphasis on the calibration and operation of medical instrumentation used in the Vascular Labs in local hospitals and clinics with which the CVTE Program is affiliated. The performance of specified diagnostic tests, calculation of hemodynamic data, and professional performance in the clinical environment will be stressed.
Transfers to CSU

Cardiovascular Technology 240 +
Anesthesia Technology Review
3 units, 3 hours lecture
This course is designed for anesthesia technicians and/or recent graduates of training programs who intend to sit for the American Society of Anesthesia Technologists and Technicians (ASATT) certification examination. A comprehensive review of anesthesia technology will be provided, from basic anatomy and physiology to pharmacology, instrumentation and troubleshooting of equipment. This course is offered on a Pass/No Pass basis only.
Transfers to CSU

Cardiovascular Technology 251 +
Diagnostic Procedures II: Adult Echocardiography
5 units, 3 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 221.*
Corequisite: *CVTE 261.*
This course is a continuation of Cardiovascular Technology 221, Adult Echocardiography Diagnostic Procedures I. It is an advanced course in the techniques utilized in the diagnosis and serial follow-up of cardiovascular disease with emphasis on pulsed wave, continuous wave and color-flow, Doppler techniques, conventional and echocardiographic stress testing and trans-esophageal echocardiography. The classroom laboratory continues advanced instruction in the topics and performance of diagnostic tests in echocardiography. The theory, calibration, operation and clinical application of specified diagnostic medical instrumentation will be applied. Hospital based laboratory sessions are conducted in non-invasive cardiac labs in local hospitals supporting lecture topics.
Transfers to CSU

Cardiovascular Technology 252 +
Interventional Procedures II: Invasive Cardiology
5 units, 3 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 222.*
Corequisite: *CVTE 262.*
This course continues the advanced study of cardiac medical electronics and instrumentation, focusing on devices utilized in invasive cardiology. Specialized interventional procedures performed in the Cardiac Catheterization Lab will be emphasized, along with cardiac rhythm management, device implantation, and electrophysiology studies. Classroom and hospital based lab sessions will focus on coronary, peripheral and electrophysiologic procedures.
Transfers to CSU

Cardiovascular Technology 253 +
Diagnostic Procedures II: Vascular Technology
5units, 3 hours lecture, 6 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 223.*
Corequisite: *CVTE 263.*
A course of instruction in the specialized techniques of noninvasive testing of the human vascular system and the evaluation of vascular pathophysiology. Lectures will stress the performance and analysis of vascular ultrasound scanning, spectral analysis and the interpretation of scanning and non-scanning modalities for vascular testing. The classroom laboratory provides advanced instruction in the topics and performance of diagnostics tests in vascular technology. The theory, calibration, operation and clinical application of specified diagnostic medical instrumentation will be applied. Hospital based laboratory sessions are conducted in vascular laboratories in local hospitals, with instruction in techniques of duplex scanning of the cerebrovascular and lower-extremity and abdominal vasculature.
Transfers to CSU

Cardiovascular Technology 261 +
Clinical Practicum III: Adult Echocardiography
5 units, 15 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 231*
Corequisite: *CVTE 251*
This laboratory course provides a continuation of clinical practicum with emphasis on the acquisition and refinement of skills in the calibration and operation of medical instrumentation used in the non-invasive labs in local hospitals and clinics with which the CVTE Program is affiliated. The performance of specified diagnostic tests, calculation of hemodynamic data, and professional performance in the clinical environment will be stressed. Emphasis will be on consolidating skills acquired in CVTE 231 into complete diagnostic studies, including qualitative diagnostic interpretations.
Transfers to CSU

Cardiovascular Technology 262 +
Clinical Practicum III: Invasive Cardiology
5 hours, 15 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 232*
Corequisite: *CVTE 252*
This laboratory course provides a continuation of clinical practicum with emphasis on the acquisition and refinement of skills in the calibration and operation of medical instrumentation used in the Cardiac Catheterization Labs in local hospitals with which the CVTE Program is affiliated. The performance of specified diagnostic tests, calculation of hemodynamic data, and professional performance in the clinical environment will be stressed. Emphasis will be on consolidating skills acquired in CVTE 232 into complete diagnostic studies, including qualitative diagnostic interpretations.
Transfers to CSU

Cardiovascular Technology 263 +
Clinical Practicum III: Vascular Technology
5 units, 15 hours laboratory
Prerequisite: *A "C" grade or higher in CVTE 233*
Corequisite: *CVTE 253*
This laboratory course provides a continuation of clinical practicum with emphasis on the acquisition and refinement of skills in the calibration and operation of medical instrumentation used in the Vascular Labs in local hospitals and clinics with which the CVTE Program is affiliated. The performance of specified diagnostic tests, calculation of hemodynamic data, and professional performance in the clinical environment will be stressed. Emphasis will be on consolidating skills acquired in CVTE 233 into complete diagnostic studies, including qualitative diagnostic interpretations.
Transfers to CSU

Cardiovascular Technology 298++
Selected Topics in Cardiovascular Technology
1-3 units, 3-9 hours

Prerequisite: *Varies with topic.*
Selected topics in cardiovascular technology not covered by regular catalog offerings. Course content and unit credit to be determined by the Division of Career and Technical Education/Workforce Development in relation to community/student need(s) and/or available staff. May be offered as a seminar, lecture or laboratory class. Pass/No Pass only. **Non-associate degree applicable**

Cardiovascular Technology 299A+
Selected Topics in Cardiovascular Technology
1-3 units, 3-9 hours
Prerequisite: *Varies with topic.*
Selected topics in cardiovascular technology not covered by regular catalog offerings. Course content and unit credit to be determined by the Division of Career and Technical Education/Workforce Development in relation to community/student need(s) and/or available staff. May be offered as a seminar, lecture or laboratory class.
Associate degree applicable

Cardiovascular Technology 299B+
Selected Topics in Cardiovascular Technology
1-3 units, 3-9 hours
Prerequisite: *Varies with topic.*
Selected topics in cardiovascular technology not covered by regular catalog offerings. Course content and unit credit to be determined by the Division of Career and Technical Education/Workforce Development in relation to community/student need(s) and/or available staff. May be offered as a seminar, lecture or laboratory class.
Baccalaureate level – CSU transfer

Cardiovascular Technology (CVTE)

See page 9 for special admission procedures and criteria.
In addition to the college application, a special application for Cardiovascular Technology (CVTE) is required. Applications and instructions are available at the CVTE website: http://www.grossmont.edu/cvt/

The Cardiovascular Technology Program at Grossmont College is a two-year course of study leading to an Associate in Science Degree. Graduates of the program enter the health care profession as Cardiovascular Technologists.

Students accepted to the Cardiovascular Program are required to undergo a background check and urine drug screening before being starting the program and being placed at any clinical site. The cost of these procedures may be $65 to $120. The student will be responsible for paying these fees. Failure to pass either of these procedures may interfere with clinical placement and/ or acceptance to the program. Any prior conviction of a misdemeanor or felony may also influence eligibility for registry exams and employment with healthcare agencies. Applicants with prior convictions are urged to contact the Program Director of the Cardiovascular Technology Program for confidential advisement and planning prior to applying to the program.

Cardiovascular Technology students are educated in the theory and clinical application of diagnostic tests used in the diagnosis and treatment of cardiovascular disease.

The first year of the program is composed of a core curriculum of courses which encompass physics, mathematics, cardiovascular anatomy, physiology and pathophysiology, medical instrumentation, and the application of clinical cardiovascular techniques.

After the first semester, students select one of three subspecialties for concentrated study, which includes lecture, laboratory and clinical experience courses.

Subspecialties include:

Invasive Cardiovascular Technology
Invasive Cardiovascular Technologists work in cardiac catheterization laboratories where they assist the invasive cardiologist in performing diagnostic and interventional procedures such as cardiac catheterization, balloon angioplasty, electrocardiographic monitoring, and stent and pacemaker placement. The technologist assists the

physician during the catheterization, providing the appropriate instruments, operates various pieces of electronic medical equipment and calculates clinical information for interpretation by the physician.

Adult Echocardiography
Adult Echocardiographers perform cardiac ultrasound studies and specialized electrocardiographic procedures. The information obtained from these clinical studies is used by the cardiologist to evaluate patients for cardiovascular disease and designing comprehensive treatment plans. These technologists perform the studies, operate various electronic instruments, prepare preliminary reports and calculate clinical information for interpretation by the physician.

Vascular Technology
Vascular Technologists perform ultrasound and other diagnostic studies to evaluate arterial and venous obstructions, malformations, or diseases which may put the patient at risk for a stroke, or for loss of circulation in their extremities. The information obtained from these clinical studies is used by vascular surgeons and neurologists to establish a diagnosis, assess the severity of existing disease, and to design comprehensive treatment plans. The vascular technologist performs the studies, operates various medical instruments, prepares preliminary reports and calculates clinical information for interpretation by the physician.

Career Opportunities

Coronary Interventional Specialist
Cath Lab Specialist
Echocardiographer
Echosonographer
Vascular Technologist
Peripheral Vascular Specialist
Department Lead, Supervisor, or Manager
Equipment Sales Representative
Pacemaker Representative
Surgical and Endovascular Equipment Sales

With additional training, Nursing, Physician's Assistant or Surgical Assistant
The Program-level Student Learning Outcomes (PSLOs) below are outcomes that students will achieve after completing specific degree requirements in this program. Students will:

1. All graduates will develop and maintain a professional attitude as a Cardiovascular Technologist, striving for excellence in skills and knowledge, sharing knowledge and skills with others, caring for self, caring for and supporting patients, and protecting patients' rights, privacy and dignity. Continue life-long learning habits and professional growth.
2. Students of INVASIVE CARDIOLOGY will apply principles of cardiovascular anatomy, physiology, pathophysiology and medical instrumentation to perform and interpret diagnostic and interventional studies in the cardiac catheterization laboratory.
3. Students of INVASIVE CARDIOLOGY will set up, calibrate and operate diagnostic and interventional instrumentation in the Cardiac Catheterization Laboratory: hemodynamic monitoring systems, electrocardiographs, contrast dye injectors, oxcimeters, cardiac pacemakers, cardiac output computers and electrophysiology simulators.
4. Students of ADULT ECHOCARDIOGRAPHY will apply principles of cardiovascular anatomy, physiology, pathophysiology and medical instrumentation to perform, analyze and interpret diagnostic studies: M-Mode, Two-Dimensional, Doppler and Transesophegal cardiac ultrasound studies.
5. Students of ADULT ECHOCARDIOGRAPHY will perform diagnostic cardiac ultrasound studies using standard and
   Doppler ultrasound instruments equipped with surface and transesophegal transducers. Calculate prescribed hemodynamic function indices for interpretation by the physician.
6. Students of VASCULAR TECHNOLOGY will apply principles of vascular anatomy, physiology, pathophysiology and medical instrumentation to perform and interpret diagnostic studies: cerebrovascular, peripheral vascular and abdominal vascular.
7. Students of VASCULAR TECHNOLOGY will perform vascular diagnostic studies using duplex ultrasound, continuous-wave Doppler, arterial and venous plethysmography and photoplethysmography, for testing of

cerebrovascular, peripheral vascular and abdominal vascular systems.

General Education Requirements for Cardiovascular Technology Majors

All Allied Health and Nursing students adhere to the graduation requirements outlined in the college catalog for the academic year in which they enter the program.

Competency Requirement

Competency in reading, writing, expression shown by achieving a "C" grade or higher or "Pass" in courses listed under Area A, Section 1 – Written Communication.
Competency in Mathematics shown by either
Earning a grade of "C" or better or "Pass" in Math 103 or a higher numbered mathematics course or
Assessing into Math 120 or higher through the mathematics placement process. (Students meeting competency through assessment must still take an Area A3 course.)

Area A - Language and Rationality

Three courses (a minimum of nine units) are required in written communication, oral communication, and analytical thinking. At least ONE course must be taken from EACH of the following three sections:

1. **Written Communication**
   Must be completed with a "C" grade or higher to satisfy the competency requirement.
   English 120, 124

2. **Oral Communication**
   Communication 120, 122

3. **Analytical Thinking**
   Competency in Mathematics shown by either
   Earning a grade of "C" or better or "Pass" in Math 103 or a higher numbered mathematics course or
   Assessing into Math 120 or higher through the mathematics placement process. (Students meeting competency through assessment must still take an Area A3 course.)
   Anthropology 215
   Biology 215
   Economics 215
   Geography 104
   Mathematics 103, 110, 120, 125, 126, 150, 160, 170, 175, 176, 178, 180, 245, 280, 281, 284, 285
   Philosophy 125, 130
   Psychology 215
   Sociology 215

Area B - Natural Sciences

Two natural science courses (a minimum of seven units) are required. One course must contain a laboratory**.**
Courses with an asterisk are laboratory only. <u>Courses not containing a laboratory component are underlined</u>.

Anthropology <u>130</u>, 131*
Astronomy <u>110</u>, 112*, 120
Biology 105, 110, <u>112</u>, <u>114</u>, <u>118</u>, 120, 140, 141, 142*, 144, 145, 152, 180, 230, 240
Chemistry 102, <u>110</u>, 113, 115, 116, 120, 141, 142, 231, 232
Geography <u>120</u>, 121*, <u>140</u>
Geology <u>104</u>, <u>110</u>, 111*, 121, <u>210</u>, <u>220</u>, <u>230</u>
Oceanography <u>112</u>, 113*
Physical Science 100, <u>110</u>, 111*
Physics 110, 130, 131, 140, 240, 241
Science <u>110</u>

Area C - Humanities

One humanities course (a minimum of three units) is required.

American Sign Language 120, 121, 140, 220, 221, 250
Arabic 120, 121, 122, 123, 148, 220, 221, 250, 251
Art 100, 120, 124, 126, 129, 140, 141, 142, 143, 145, 146, 147, 171, 189
Chinese 120, 121, 220, 221, 250, 251
Communication 135, 137, 144, 145
Cross-Cultural Studies 122, 123, 126, 134, 144, 147, 149, 152, 236, 237, 238
Dance 110
English 112, 118, 122, 126, 134-135-136-137, 201, 203, 215, 217, 218, 219, 221, 222, 231, 232, 234, 235, 236, 237, 238, 241, 242, 275, 276, 277
French 120, 121, 152, 220, 221, 250, 251
German 120, 121, 220, 221, 250, 251
Health Education 155, 158
History 100, 101, 103, 105, 106, 113, 126, 135, 136, 137, 138
Humanities 110, 120, 125, 130, 135, 160, 170
Italian 120, 121, 220, 221, 250, 251
Japanese 120, 121, 149, 220, 221, 250, 251
Media Communications 111, 189
Music 110, 111, 115, 116, 117, 189
Philosophy 110, 111, 112, 114, 116, 118, 140, 141, 145, 150, 155
Photography 150, 154
Religious Studies 120, 130, 140, 150
Russian 120, 121, 220, 221, 250, 251
Spanish 120, 121, 122, 123, 141, 145, 220, 221, 250, 251
Theatre Arts 101, 110, 130, 143, 144, 189

Area D - Social Sciences
One social science course (a minimum of three units) is required.

Administration of Justice 110
Anthropology 120, 140
Child Development 115, 125, 131, 134, 145, 153
Communication 124, 128
Cross-Cultural Studies 114, 124, 125, 128, 130, 131, 132, 133, 135, 145, 153, 154, 155
Economics 110, 120, 121
Family Studies 115, 120
Geography 106, 130, 170
Health Education 120, 155, 158, 201
Health Science 110
History 108, 109, 114, 115, 118, 119, 122, 123, 124, 130, 131, 154, 155, 180, 181
Media Communications 110
Political Science 120, 121, 124, 130, 140, 150, 160
Psychology 120, 125, 130, 132, 134, 138, 170
Sociology 114, 120, 125, 130, 138, 140

Area E – Fitness/Wellness
Two courses involving physical exercise and/or dance are required. They can be chosen from the exercise science and/or dance courses listed below:

Dance 068, 071A, 071B, 072A, 072B, 074A, 074B, 078 A, 078B, 080A, 080B, 080C, 080D, 081A, 081B, 081C, 081D, 082A, 082B, 084A, 084B, 084C, 084D, 088A, 088B, 088C, 088D, 094A, 094B, 094C, 094D, 099A, 099B, 099C, 116

Exercise Science 001, 002, 003, 004A, 004B, 004C, 005A, 005B, 005C, 006A, 006B, 006C, 007A, 007B, 007C, 009A, 009B, 009C, 017A, 017B, 017C, 021A, 021B, 021C, 023A, 023B, 023C, 024A, 024B, 024C, 027, 028A, 028B, 028C, 029, 030, 035, 037A, 037B, 037C, 039, 040A, 040B, 040C, 041, 043A, 043B, 043C, 044A, 044B, 044C,

060A, 060B, 060C, 076A, 076B, 076C, 121, 125A, 125B, 125C, 130A, 130B, 130C, 155A, 155B, 155C, 170A, 170B, 170C, 171A, 171B, 171C, 172A, 172B, 172C, 175A, 175B, 175C, 180, 185A, 185B, 185C

Associate Degree Major Requirements

Note: All courses in the major must be completed with a letter grade of "C" or higher.

Core Curriculum

All students complete the following core courses in the first year of the program:

Subject & Number	Title	Units
Cardiovascular Technology 100	Physical Principles of Medicine I	2
Cardiovascular Technology 101	Cardiovascular Physiology I	4
Cardiovascular Technology 102	Medical Instrumentation I	3
Cardiovascular Technology 103	Laboratory Practicum and Proficiency Testing I	2
Cardiovascular Technology 111	Cardiovascular Physiology II	4
Cardiovascular Technology 113	Introduction to Clinical Practicum II	1
Cardiovascular Technology 114	Cardiovascular Pharmacology	2
	Total	18

Area of Emphasis
Invasive
Note: All courses must be completed with a letter grade of "C" or higher.

Subject & Number	Title	Units
Cardiovascular Technology 109	X-Ray Physics and Radiation Safety	3
Cardiovascular Technology 116	Introduction to Invasive Cardiology	4
Cardiovascular Technology 122	Clinical Practicum I: Invasive Cardiology	2
Cardiovascular Technology 222	Diagnostic Procedures, Invasive Cardiology	5
Cardiovascular Technology 232	Clinical Practicum II: Invasive Cardiology	5
Cardiovascular Technology 252	Interventional Procedures II: Invasive Cardiology	5
Cardiovascular Technology 262	Clinical Practicum III: Invasive Cardiology	5
	Total	29
	Total Required	47
	Plus General Education and Elective Requirements	

Area of Emphasis
Adult Echocardiography
Note: All courses must be completed with a letter grade of "C" or higher.

Subject & Number	Title	Units
Cardiovascular Technology 110	Physical Principles of Medicine II	3
Cardiovascular Technology 115	Introduction to Adult Echocardiography	4
Cardiovascular Technology 121	Clinical Practicum I: Adult Echocardiography	2
Cardiovascular Technology 221	Diagnostic Procedures I: Adult Echocardiography	5
Cardiovascular Technology 231	Clinical Practicum II: Adult Echocardiography	5
Cardiovascular Technology 251	Diagnostic Procedures II: Adult Echocardiography	5
Cardiovascular Technology 261	Clinical Practicum III: Adult Echocardiography	5
	Total	29
	Total Required	47
	Plus General Education and Elective Requirements	

Area of Emphasis
Vascular Technology
Note: All courses must be completed with a letter grade of "C" or higher.

Subject & Number	Title	Units
Cardiovascular Technology 110	Physical Principles of Medicine II	3
Cardiovascular Technology 117	Introduction to Vascular Technology	4
Cardiovascular Technology 123	Clinical Practicum I: Vascular Technology	2
Cardiovascular Technology 223	Diagnostic Procedures I: Vascular Technology	5
Cardiovascular Technology 233	Clinical Practicum II: Vascular Technology	5
Cardiovascular Technology 253	Diagnostic Procedures II: Vascular Technology	5
Cardiovascular Technology 263	Clinical Practicum III: Vascular Technology	5
	Total	29
	Total Required	47
	Plus General Education and	
	Elective Requirements	

Certificate of Proficiency

The following Certificate of Proficiency is designed for the student who needs to be prepared to enter an entry-level position. A department-issued certificate may be awarded upon successful completion of a prescribed course of study. This certificate will not appear on a student's transcript.
Note: All courses must be completed with a letter grade of "C" or higher.

Telemetry/ ECG Technician

All Allied Health and Nursing students adhere to the graduation requirements outlined in the college catalog for the academic year in which they enter the program.

The Telemetry/ECG Technician Certificate of Proficiency provides students with the skills necessary to gain employment as an ECG Technician, Exercise Treadmill Technician, Holter Monitor Technician, Pacemaker Technician, or Telemetry Technician. Students may choose to begin a career or update existing skills. Students successfully completing the certificate are employable at hospitals and healthcare facilities throughout the country.
All classes must be completed with a "C" grade or higher.

Subject and Number	Title	Units
Cardiovascular Technology 104	Electrocardiographic Theory	3
Cardiovascular Technology 105	Electrocardiographic Technique	2
Cardiovascular Technology 106	Advanced Electrocardiographic Studies	5
Cardiovascular Technology 108	Advanced Cardiac Monitoring	2
	Total	12

Appendix 3

CVT Grade Distribution

Grade Distribution by Division
School: Grossmont College -- Term: 2008FA -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-100 Physical Prin Medicine I																			
2477		2.0	51	0	25	0	0	16	0	0	5	0	5	0	0	0	2	Ridgway, Donald	
CVTE-101 Cardiovascular Physiology I																			
2478		4.0	51	0	21	0	0	21	0	0	3	0	6	0	0	0	2	Potter, Helen	XP
CVTE-102 Medical Instrumentation I																			
2479		4.0	19	0	9	0	0	8	0	0	1	0	1	0	0	0	1	Biondo, Andrew	XP
2480		4.0	19	0	12	0	0	6	0	0	0	0	1	0	0	0	1	Biondo, Andrew	
2481		4.0	13	0	8	0	0	4	0	0	1	0	0	0	0	0	0	Biondo, Andrew	
Course Total			51	0	29	0	0	18	0	0	2	0	2	0	0	0	2		
CVTE-103 Lab Practicum/Prof Testing I																			
2482		2.0	17	0	13	0	0	2	0	0	0	0	2	0	0	0	0	Ridgway, Donald	
2483		2.0	20	0	18	0	0	1	0	0	0	0	1	0	0	0	0	Ridgway, Donald	
2484		2.0	14	0	13	0	0	1	0	0	0	0	0	0	0	0	2	Ridgway, Donald	
Course Total			51	0	44	0	0	4	0	0	0	0	3	0	0	0	2		
CVTE-104 ECG Theory																			
2485N**		3.0	16	0	13	0	0	2	0	0	1	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-105 ECG Techniques																			
2486N**		2.0	16	0	13	0	0	3	0	0	0	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-198 Supervised Tutoring - CVTE																			
2487		.0	259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Kirby, Rickey	PT
CVTE-200 Medical Instrumentation III																			
2488		3.0	16	0	10	0	0	5	0	0	1	0	0	0	0	0	0	Biondo, Andrew	
2489		3.0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			28	0	22	0	0	5	0	0	1	0	0	0	0	0	0		
CVTE-201 Diagnostic Proced I-Non Inv																			
2490		4.0	16	0	6	0	0	10	0	0	0	0	0	0	0	0	0	Potter, Helen	
CVTE-202 Diagnos Proced Invasive Cardi0																			
2491		4.0	12	0	11	0	0	1	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
CVTE-203 Diagnostic Procedure I-Pv																			
2492		4.0	12	0	4	0	0	7	0	0	1	0	0	0	0	0	0	Ridgway, Donald	
CVTE-205 Clinical Practicum II																			
2493		5.0	40	0	40	0	0	0	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
CVTE-207 Invasive Med Instrumentation I																			
2494		2.0	12	0	10	0	0	2	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-208 Xray Physics/Cardio Angiograph																			
2495N		2.0	12	0	9	0	0	3	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
CVTE-299 A & P for Anesthesia Tech																			
2497N**		2.0	25	0	11	0	0	10	0	0	4	0	0	0	0	0	2	Simpson, Wesley	PT
2498 **		2.0	25	0	5	0	0	12	0	0	7	0	1	0	0	0	2	Simpson, Wesley	PT
2499N		1.5	24	0	23	0	0	1	0	0	0	0	0	0	0	0	2	Thomas, Dawn	PT
Course Total			24	0	23	0	0	1	0	0	0	0	0	0	0	0	2		
Subject Total			619	0	244	0	0	88	0	0	12	0	16	0	0	0	10		

Grade Distribution by Division

School: Grossmont College -- Term: 2009FA -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-100 Physical Prin Medicine I																			
2477		2.0	47	0	24	0	0	18	0	0	3	0	2	0	0	0	4	Ridgway, Donald	XP
CVTE-101 Cardiovascular Physiology I																			
2478		4.0	47	0	19	0	0	23	0	0	2	0	3	0	0	0	4	Potter, Helen	XP
CVTE-102 Medical Instrumentation I																			
2479		4.0	16	0	9	0	0	6	0	0	1	0	0	0	0	0	1	Biondo, Andrew	XP
2480		4.0	17	0	9	0	0	7	0	0	1	0	0	0	0	0	2	Biondo, Andrew	
2481		4.0	14	0	8	0	0	6	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
Course Total			47	0	26	0	0	19	0	0	2	0	0	0	0	0	4		
CVTE-103 Lab Practicum/Prof Testing I																			
2482		2.0	10	0	8	0	0	2	0	0	0	0	0	0	0	0	2	Ridgway, Donald	
2483		2.0	18	0	16	0	0	1	0	0	0	0	1	0	0	0	2	Ridgway, Donald	
2484		2.0	19	0	19	0	0	0	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
Course Total			47	0	43	0	0	3	0	0	0	0	1	0	0	0	4		
CVTE-104 ECG Theory																			
2485N		3.0	21	0	18	0	0	3	0	0	0	0	0	0	0	0	2	Marshall, Ward	PT
CVTE-105 ECG Techniques																			
2486N		2.0	21	0	21	0	0	0	0	0	0	0	0	0	0	0	2	Marshall, Ward	PT
CVTE-198 Supervised Tutoring - CVTE																			
2487 **		.0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Kirby, Rickey	PT
CVTE-200 Medical Instrumentation III																			
2488		3.0	15	0	9	0	0	6	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
2489		3.0	13	0	9	0	0	4	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			28	0	18	0	0	10	0	0	0	0	0	0	0	0	0		
CVTE-201 Diagnostic Proced I-Non Inv																			
2490		4.0	16	0	1	0	0	11	0	0	4	0	0	0	0	0	0	Potter, Helen	
CVTE-202 Diagnos Proced Invasive Cardio																			
2491		4.0	11	0	10	0	0	1	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
CVTE-203 Diagnostic Procedure I-Pv																			
2492		4.0	12	0	7	0	0	5	0	0	0	0	0	0	0	0	0	Ridgway, Donald	XP
CVTE-205 Clinical Practicum II																			
2493		5.0	39	0	39	0	0	0	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
CVTE-207 Invasive Med Instrumentation I																			
2494		2.0	11	0	6	0	0	5	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-208 Xray Physics/Cardio Angiograph																			
2495		2.0	11	0	5	0	0	6	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
Subject Total			358	0	237	0	0	104	0	0	11	0	6	0	0	0	20		

Grade Distribution by Division

School: Grossmont College -- Term: 2010FA -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-100 Physical Prin Medicine I																			
2477	2.0		45	0	21	0	0	20	0	0	2	0	2	0	0	0	2	Ridgway, Donald	
CVTE-101 Cardiovascular Physiology I																			
2478	4.0		45	0	12	0	0	25	0	0	7	0	1	0	0	0	2	Potter, Helen	XP
CVTE-102 Medical Instrumentation I																			
2479	4.0		20	0	8	0	0	12	0	0	0	0	0	0	0	0	0	Biondo, Andrew	XP
2480	4.0		15	0	9	0	0	6	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
2481	4.0		10	0	8	0	0	2	0	0	0	0	0	0	0	0	2	Biondo, Andrew	
Course Total			45	0	25	0	0	20	0	0	0	0	0	0	0	0	3		
CVTE-103 Lab Practicum/Prof Testing I																			
2482	2.0		12	0	12	0	0	0	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
2483	2.0		18	0	14	0	0	3	0	0	0	0	1	0	0	0	1	Ridgway, Donald	
2484	2.0		15	0	10	0	0	3	0	0	0	0	2	0	0	0	0	Ridgway, Donald	
Course Total			45	0	36	0	0	6	0	0	0	0	3	0	0	0	2		
CVTE-104 ECG Theory																			
2485N	3.0		29	0	25	0	0	4	0	0	0	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-105 ECG Techniques																			
2486N	2.0		29	0	29	0	0	0	0	0	0	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-107 Intro to Clinical Practicum I																			
6241	1.0		18	0	15	0	0	0	0	0	3	0	0	0	0	0	4	Potter, Helen	
CVTE-200 Medical Instrumentation III																			
2488	3.0		19	0	8	0	0	11	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
2489	3.0		12	0	11	0	0	1	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			31	0	19	0	0	12	0	0	0	0	0	0	0	0	0		
CVTE-201 Diagnostic Proced I-Non Inv																			
2490	4.0		19	0	11	0	0	6	0	0	1	0	1	0	0	0	0	Potter, Helen	
CVTE-202 Diagnos Proced Invasive Cardio																			
2491	4.0		11	0	4	0	0	7	0	0	0	0	0	0	0	0	1	Sullivan, Daniel	
CVTE-203 Diagnostic Procedure I-Pv																			
2492	4.0		12	0	6	0	0	6	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
CVTE-205 Clinical Practicum II																			
2493	5.0		42	0	40	0	0	2	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
CVTE-207 Invasive Med Instrumentation I																			
2494	2.0		11	0	7	0	0	4	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
CVTE-208 Xray Physics/Cardio Angiograph																			
2495	2.0		11	0	7	0	0	4	0	0	0	0	0	0	0	0	1	Sullivan, Daniel	XP
Subject Total			393	0	257	0	0	116	0	0	13	0	7	0	0	0	17		

Grade Distribution by Division

School: Grossmont College -- Term: 2011FA -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-100 Physical Prin Medicine I																			
2477	2.0		48	0	26	0	0	16	0	0	2	0	4	0	0	0	1	Ridgway, Donald	
CVTE-101 Cardiovascular Physiology I																			
2478	4.0		49	0	21	0	0	18	0	0	7	0	3	0	0	0	1	Potter, Helen	XP
CVTE-102 Medical Instrumentation I																			
2479	4.0		18	0	11	0	0	6	0	0	0	0	1	0	0	0	0	Biondo, Andrew	
2480	4.0		16	0	7	0	0	9	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
2481	4.0		14	0	10	0	0	3	0	0	1	0	0	0	0	0	1	Biondo, Andrew	
Course Total			48	0	28	0	0	18	0	0	1	0	1	0	0	0	1		
CVTE-103 Lab Practicum/Prof Testing I																			
2482	2.0		19	0	17	0	0	1	0	0	0	0	1	0	0	0	1	Ridgway, Donald	
2483	2.0		19	0	18	0	0	0	0	0	0	0	1	0	0	0	0	Ridgway, Donald	
2484	2.0		9	0	8	0	0	1	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
Course Total			47	0	43	0	0	2	0	0	0	0	2	0	0	0	2		
CVTE-104 ECG Theory																			
2485N	3.0		25	0	19	0	0	5	0	0	0	0	1	0	0	0	1	Marshall, Ward	PT
CVTE-105 ECG Techniques																			
2486N	2.0		25	0	24	0	0	0	0	0	0	0	1	0	0	0	1	Marshall, Ward	PT
CVTE-200 Medical Instrumentation III																			
2488	3.0		16	0	11	0	0	4	0	0	0	0	1	0	0	0	0	Biondo, Andrew	
2489	3.0		11	0	11	0	0	0	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
Course Total			27	0	22	0	0	4	0	0	0	0	1	0	0	0	1		
CVTE-201 Diag Proced I-Adult Echocardio																			
2490	4.0		16	0	5	0	0	9	0	0	0	0	2	0	0	0	0	Potter, Helen	
CVTE-202 Diagnos Proced Invasive Cardio																			
2491	4.0		9	0	6	0	0	1	0	0	1	0	1	0	0	0	0	Barrow, Elizabeth	
CVTE-203 Diagnostic Procedure I-Pv																			
2492	4.0		11	0	9	0	0	2	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
CVTE-205 Clinical Practicum II																			
2493	5.0		36	0	36	0	0	0	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
CVTE-207 Invasive Med Instrumentation I																			
2494	2.0		9	0	8	0	0	0	0	0	0	0	1	0	0	0	0	Biondo, Andrew	
CVTE-208 Xray Physics/Cardio Angiograph																			
2495	2.0		9	0	5	0	0	2	0	0	1	0	1	0	0	0	1	Barrow, Elizabeth	
Subject Total			359	0	252	0	0	77	0	0	12	0	18	0	0	0	11		

Grade Distribution by Division

School: Grossmont College -- Term: 2012FA -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-100 Physical Prin Medicine I																			
2477	2.0		38	0	25	0	0	7	0	0	5	0	1	0	0	0	6	Rosen, Daniel	PT
CVTE-101 Cardiovascular Physiology I																			
2478	4.0		38	0	22	0	0	13	0	0	1	0	2	0	0	0	6	Potter, Helen	
CVTE-102 Medical Instrumentation I																			
2479	4.0		19	0	17	0	0	2	0	0	0	0	0	0	0	0	3	Marshall, Ward	PT
2480	4.0		19	0	13	0	0	5	0	0	0	0	1	0	0	0	3	Kotsyubko, Alexander	PT
Course Total			38	0	30	0	0	7	0	0	0	0	1	0	0	0	6		
CVTE-103 Lab Practicum/Prof Testing I																			
2482	2.0		12	0	12	0	0	0	0	0	0	0	0	0	0	0	3	Pugeda, Caesar	PT
2483	2.0		13	0	13	0	0	0	0	0	0	0	0	0	0	0	2	Potter, Helen	
2484	2.0		13	0	13	0	0	0	0	0	0	0	0	0	0	0	2	Potter, Helen	
Course Total			38	0	38	0	0	0	0	0	0	0	0	0	0	0	7		
CVTE-104 ECG Theory																			
2485N	3.0		27	0	20	0	0	5	0	0	2	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-105 ECG Techniques																			
2486N	2.0		27	0	25	0	0	2	0	0	0	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-200 Medical Instrumentation III																			
2488	3.0		19	0	16	0	0	2	0	0	0	0	1	0	0	0	1	Potter, Helen	
2489	3.0		12	0	11	0	0	0	0	0	1	0	0	0	0	0	0	Schwend, Raymond	PT
Course Total			31	0	27	0	0	2	0	0	1	0	1	0	0	0	1		
CVTE-201 Diag Procedures I-Adult Echo																			
2490	4.0		21	0	7	0	0	11	0	0	1	0	2	0	0	0	0	Potter, Helen	
CVTE-202 Diag Procedures I-Invasive																			
2491	4.0		12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	Silvernail, Lowell	PT
CVTE-203 Diag Procedure I-Vascular																			
2492	4.0		12	0	11	0	0	0	0	0	1	0	0	0	0	0	0	Garcia, Edgar	PT
CVTE-205 Clinical Practicum II																			
2493	5.0		44	0	40	0	0	3	0	0	0	0	1	0	0	0	1	Barrow, Elizabeth	
CVTE-207 Invasive Med Instrumentation I																			
0561	2.0		12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	
CVTE-208 Xray Physics/Cardio Angiograph																			
2495	2.0		12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	XP
Subject Total			350	0	281	0	0	50	0	0	11	0	8	0	0	0	27		

Grade Distribution by Division

School: Grossmont College -- Term: 2013FA -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section / N = Night / ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-100 Physical Prin Medicine I																			
2477	2.0		36	0	19	0	0	9	0	0	4	0	4	0	0	0	5	Rosen, Daniel	PT
CVTE-101 Cardiovascular Physiology I																			
2478	4.0		36	0	16	0	0	16	0	0	2	0	2	0	0	0	6	Potter, Helen	
CVTE-102 Medical Instrumentation I																			
2479	4.0		16	0	11	0	0	5	0	0	0	0	0	0	0	0	3	Kotsyubko, Alexander	PT
2480	4.0		20	0	9	0	0	8	0	0	1	0	2	0	0	0	3	Kotsyubko, Alexander	PT
Course Total			36	0	20	0	0	13	0	0	1	0	2	0	0	0	6		
CVTE-103 Lab Practicum/Prof Testing I																			
2482	2.0		13	0	9	0	0	4	0	0	0	0	0	0	0	0	0	Rosen, Daniel	PT
2483	2.0		8	0	6	0	0	1	0	0	0	0	1	0	0	0	3	Potter, Helen	
2484	2.0		15	0	10	0	0	4	0	0	0	0	1	0	0	0	2	Potter, Helen	
Course Total			36	0	25	0	0	9	0	0	0	0	2	0	0	0	5		
CVTE-104 ECG Theory																			
2485N	3.0		27	0	24	0	0	2	0	0	0	0	1	0	0	0	1	Marshall, Ward	PT
CVTE-105 ECG Techniques																			
2486N	2.0		27	0	27	0	0	0	0	0	0	0	0	0	0	0	1	Marshall, Ward	PT
CVTE-107 Intro to Clinical Practicum I																			
2528	1.0		17	0	15	0	0	0	0	0	2	0	0	0	0	0	4	Potter, Helen	
CVTE-200 Medical Instrumentation III																			
2488	3.0		27	0	27	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	XP
CVTE-201 Diag Procedures I-Adult Echo																			
2490	4.0		15	0	8	0	0	5	0	0	1	0	1	0	0	0	0	Potter, Helen	
CVTE-202 Diag Procedures I-Invasive																			
2491	4.0		10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	Kraus, Daniel	PT
CVTE-203 Diag Procedure I-Vascular																			
2492	4.0		11	0	9	1	1	0	0	0	0	0	0	0	0	0	0	Schwend, Raymond	PT
CVTE-205 Clinical Practicum II																			
2493	5.0		37	0	37	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	
CVTE-207 Invasive Med Instrumentation I																			
0561	2.0		10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	
CVTE-208 Xray Physics/Cardio Angiograph																			
2495	2.0		10	1	6	0	0	3	0	0	0	0	0	0	0	0	0	Gordon, Christina	PT
Subject Total			335	1	253	1	1	57	0	0	10	0	12	0	0	0	28		

Grade Distribution by Division

School: Grossmont College -- Term: 2009SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-106 Advanced Ecg Theory																			
6604N**		5.0	13	0	10	0	0	3	0	0	0	0	0	0	0	0	1	Marshall, Ward	PT
CVTE-107 Intro Clinical Practicum I																			
6605		1.0	15	0	11	0	0	0	0	0	1	0	3	0	0	0	3	Potter, Helen	XP
CVTE-108 Advanced Cardiac Monitoring																			
6606N**		2.0	14	0	12	0	0	2	0	0	0	0	0	0	0	0	1	Marshall, Ward	PT
CVTE-110 Physical Prin Medicine II																			
6607		2.0	43	0	14	0	0	23	0	0	4	0	2	0	0	0	2	Ridgway, Donald	
CVTE-111 Cardiovascular Physiology II																			
6608		4.0	43	0	10	0	0	20	0	0	10	0	3	0	0	0	2	Potter, Helen	XP
CVTE-112 Medical Instrumentation II																			
6609		4.0	18	0	10	0	0	7	0	0	0	0	1	0	0	0	0	Biondo, Andrew	
6610		4.0	18	0	14	0	0	4	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
6611		4.0	7	0	6	0	0	1	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
Course Total			43	0	30	0	0	12	0	0	0	0	1	0	0	0	2		
CVTE-113 Lab Practicum & Profic Test II																			
6612		2.0	14	0	13	0	0	1	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
6613		2.0	19	0	17	0	0	1	0	0	0	0	1	0	0	0	1	Ridgway, Donald	
6614		2.0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
Course Total			43	0	40	0	0	2	0	0	0	0	1	0	0	0	2		
CVTE-198 Supervised Tutoring - Cvte																			
6615		.0	195	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Kirby, Rickey	PT
CVTE-210 Med Instrumentation IV																			
6616		3.0	15	0	12	0	0	2	0	0	1	0	0	0	0	0	1	Biondo, Andrew	
6617		3.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
Course Total			26	0	23	0	0	2	0	0	1	0	0	0	0	0	2		
CVTE-211 Diagnostc Procedur II-Non Inv																			
6618		4.0	15	0	6	0	0	7	0	0	2	0	0	0	0	0	1	Potter, Helen	
CVTE-212 Interven Proced Invasiv Cardio																			
6619		4.0	12	0	12	0	0	0	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
CVTE-213 Diagnostic Proced II-Vascular																			
6620		4.0	11	0	6	0	0	5	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
CVTE-215 Clinical Practicum III																			
6621		5.0	38	0	38	0	0	0	0	0	0	0	0	0	0	0	2	Biondo, Andrew	
CVTE-217 Inv Medical Instrumentation II																			

Grade Distribution by Division

School: Grossmont College -- Term: 2009SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
6622		2.0	12	0	10	0	0	2	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-218 Intracardiac Electrophysiology																			
6623N		2.0	12	0	9	0	0	3	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
CVTE-225 Extend Exp Clinical Practicum																			
6624	3	1.0	20	0	20	0	0	0	0	0	0	0	0	0	0	0	4	Potter, Helen	
CVTE-230 Invasive Cardio Tech Review																			
6625	8	2.0	12	0	0	0	0	0	0	0	0	0	0	10	2	0	0	Buckley, Jerry	XP
CVTE-299B Anesthesia Technology II																			
9163 **		2.5	17	0	1	0	0	9	0	0	6	0	1	0	0	0	4	Simpson, Wesley	PT
9164 **		3.0	16	0	10	0	0	3	0	0	2	1	0	0	0	0	4	Simpson, Wesley	PT
9165N**		2.0	16	0	8	0	0	7	0	0	1	0	0	0	0	0	4	Rios, Loralee	PT
Course Total			49	0	19	0	0	19	0	0	9	1	1	0	0	0	12		
Subject Total			540	0	229	0	0	76	0	0	18	0	10	10	2	0	21		

Grade Distribution by Division

School: Grossmont College -- Term: 2010SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-106 Advanced Ecg Theory																			
6604N		5.0	19	0	18	0	0	1	0	0	0	0	0	0	0	0	1	Marshall, Ward	PT
CVTE-107 Intro Clinical Practicum I																			
6605		1.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	6	Potter, Helen	XP
CVTE-108 Advanced Cardiac Monitoring																			
6606N		2.0	19	0	18	0	0	1	0	0	0	0	0	0	0	0	1	Marshall, Ward	PT
CVTE-110 Physical Prin Medicine II																			
6607		2.0	46	0	18	0	0	20	0	0	7	0	1	0	0	0	1	Ridgway, Donald	XP
CVTE-111 Cardiovascular Physiology II																			
6608		4.0	47	0	16	0	0	19	0	0	10	0	2	0	0	0	1	Potter, Helen	XP
CVTE-112 Medical Instrumentation II																			
6609		4.0	19	0	12	0	0	6	0	0	1	0	0	0	0	0	1	Biondo, Andrew	
6610		4.0	16	0	14	0	0	2	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
6611		4.0	11	0	8	0	0	3	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			46	0	34	0	0	11	0	0	1	0	0	0	0	0	1		
CVTE-113 Lab Practicum & Profic Test II																			
6612		2.0	14	0	13	0	0	0	0	0	0	0	1	0	0	0	1	Ridgway, Donald	
6613		2.0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
6614		2.0	16	0	16	0	0	0	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
Course Total			46	0	45	0	0	0	0	0	0	0	1	0	0	0	1		
CVTE-210 Med Instrumentation IV																			
6616		3.0	15	0	14	0	0	1	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
6617		3.0	13	0	12	0	0	1	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			28	0	26	0	0	2	0	0	0	0	0	0	0	0	0		
CVTE-211 Diagnostc Procedur II-Non Inv																			
6618		4.0	16	0	10	0	0	6	0	0	0	0	0	0	0	0	0	Potter, Helen	
CVTE-212 Interven Proced Invasiv Cardio																			
6619		4.0	11	0	1	7	1	0	1	0	0	0	1	0	0	0	0	Sullivan, Daniel	
CVTE-213 Diagnostic Proced II-Vascular																			
6620		4.0	12	0	8	0	0	4	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
CVTE-215 Clinical Practicum III																			
6621		5.0	39	0	38	0	0	0	0	0	0	0	1	0	0	0	0	Biondo, Andrew	
CVTE-217 Inv Medical Instrumentation II																			
6622		2.0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-218 Intracardiac Electrophysiology																			
6623		2.0	11	0	0	5	3	0	0	1	1	0	1	0	0	0	0	Sullivan, Daniel	
CVTE-230 Invasive Cardio Tech Review																			
6625	8	2.0	8	0	0	0	0	0	0	0	0	0	0	8	0	0	9	Sullivan, Daniel	
Subject Total			369	0	253	12	4	64	1	1	19	0	7	8	0	0	21		

Grade Distribution by Division

School: Grossmont College -- Term: 2011SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-106 Advanced Ecg Theory																			
6604N		5.0	30	0	21	0	0	5	0	0	2	0	2	0	0	0	0	Marshall, Ward	PT
CVTE-108 Advanced Cardiac Monitoring																			
6606N		2.0	30	0	23	0	0	4	0	0	1	0	2	0	0	0	0	Marshall, Ward	PT
CVTE-110 Physical Prin Medicine II																			
6607		2.0	39	0	11	0	0	17	0	0	9	0	2	0	0	0	1	Ridgway, Donald	XP
CVTE-111 Cardiovascular Physiology II																			
6608		4.0	39	0	4	0	0	29	0	0	4	0	2	0	0	0	0	Potter, Helen	XP
CVTE-113 Lab Practicum & Profic Test II																			
6612		2.0	16	0	12	0	0	4	0	0	0	0	0	0	0	0	1	Ridgway, Donald	
6613		2.0	11	0	8	0	0	1	0	0	1	0	1	0	0	0	0	Ridgway, Donald	
6614		2.0	12	0	10	0	0	2	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
Course Total			39	0	30	0	0	7	0	0	1	0	1	0	0	0	1		
CVTE-210 Med Instrumentation IV																			
6616		3.0	17	0	7	0	0	10	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
6617		3.0	13	0	13	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			30	0	20	0	0	10	0	0	0	0	0	0	0	0	0		
CVTE-211 Diagnostc Procedur II-Non Inv																			
6618		4.0	18	0	14	0	0	3	0	0	1	0	0	0	0	0	0	Potter, Helen	
CVTE-212 Interven Proced Invasiv Cardio																			
6619		4.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	
CVTE-213 Diagnostic Proced II-Vascular																			
6620		4.0	12	0	8	0	0	3	0	0	1	0	0	0	0	0	0	Ridgway, Donald	
CVTE-215 Clinical Practicum III																			
6621		5.0	41	0	41	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-217 Inv Medical Instrumentation II																			
6622		2.0	10	0	6	0	0	4	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
CVTE-218 Intracardiac Electrophysiology																			
6623		2.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	Sullivan, Daniel	XP
CVTE-230 Invasive Cardio Tech Review																			
6625	8	2.0	11	0	0	0	0	0	0	0	0	0	0	11	0	0	1	Sullivan, Daniel	
CVTE-299B Medical Insrumentation II																			
6879		4.0	16	0	9	0	0	7	0	0	0	0	0	0	0	0	1	Biondo, Andrew	
6882		4.0	11	0	6	0	0	4	0	0	0	0	1	0	0	0	0	Biondo, Andrew	
6884		4.0	12	0	7	0	0	5	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			39	0	22	0	0	16	0	0	0	0	1	0	0	0	1		
Subject Total			360	0	222	0	0	98	0	0	19	0	10	11	0	0	5		

Grade Distribution by Division
School: Grossmont College -- Term: 2012SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-106 Advanced Ecg Theory																			
6604N		5.0	24	0	13	0	0	8	0	0	2	1	0	0	0	0	0	Marshall, Ward	PT
CVTE-108 Advanced Cardiac Monitoring																			
6606N		2.0	24	0	21	0	0	1	0	0	1	1	0	0	0	0	0	Marshall, Ward	PT
CVTE-110 Physical Prin Medicine II																			
6607		2.0	45	0	24	0	0	18	0	0	1	0	2	0	0	0	0	Ridgway, Donald	
CVTE-111 Cardiovascular Physiology II																			
6608		4.0	45	0	8	0	0	27	0	0	8	0	2	0	0	0	0	Potter, Helen	XP
CVTE-112 Medical Instrumentation II																			
9292		4.0	20	0	12	0	0	8	0	0	0	0	0	0	0	0	0	Biondo, Andrew	XP
9293		4.0	14	0	12	0	0	2	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
9294		4.0	12	0	7	0	0	5	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			46	0	31	0	0	15	0	0	0	0	0	0	0	0	0		
CVTE-113 Lab Practicum & Profic Test II																			
6612		2.0	21	0	16	0	0	4	0	0	0	0	1	0	0	0	0	Ridgway, Donald	
6613		2.0	14	0	12	0	0	2	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
6614		2.0	12	0	11	0	0	1	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
Course Total			47	0	39	0	0	7	0	0	0	0	1	0	0	0	0		
CVTE-114 Cardiovascular Pharmacology																			
9296	8	2.0	30	0	15	0	0	12	0	0	2	1	0	0	0	0	2	Oertel, Thomas	
9297	8	2.0	48	0	31	0	0	13	0	0	3	1	0	0	0	0	2	Oertel, Thomas	
Course Total			78	0	46	0	0	25	0	0	5	2	0	0	0	0	4		
CVTE-210 Med Instrumentation IV																			
6616		3.0	14	0	13	0	0	1	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
6617		3.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
Course Total			25	0	24	0	0	1	0	0	0	0	0	0	0	0	0		
CVTE-211 Diag Proc II,Adult Echocardio																			
6618		4.0	14	0	7	0	0	7	0	0	0	0	0	0	0	0	0	Potter, Helen	
CVTE-212 Interven Proced Invasiv Cardio																			
6619		4.0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	PT
CVTE-213 Diagnostic Proced II-Vascular																			
6620		4.0	11	0	10	0	0	1	0	0	0	0	0	0	0	0	0	Ridgway, Donald	
CVTE-215 Clinical Practicum III																			
6621		5.0	33	0	33	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-217 Inv Medical Instrumentation II																			
6622		2.0	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	Biondo, Andrew	
CVTE-218 Intracardiac Electrophysiology																			
6623		2.0	8	0	4	0	0	3	0	0	1	0	0	0	0	0	0	Barrow, Elizabeth	PT
CVTE-225 Extend Exp Clinical Practiccum																			
9288	3	1.0	20	0	18	0	0	2	0	0	0	0	0	0	0	0	0	Potter, Helen	XP
CVTE-230 Invasive Cardio Tech Review																			
6625	8	2.0	7	0	0	0	0	0	0	0	0	0	0	4	3	0	1	Barrow, Elizabeth	PT
Subject Total			443	0	294	0	0	115	0	0	18	4	5	4	3	0	5		

Grade Distribution by Division

School: Grossmont College -- Term: 2013SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-106 Advanced Ecg Theory																			
6604N		5.0	26	0	20	0	0	6	0	0	0	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-108 Advanced Cardiac Monitoring																			
6606N		2.0	26	0	26	0	0	0	0	0	0	0	0	0	0	0	0	Marshall, Ward	PT
CVTE-110 Physical Prin Medicine II																			
6607		2.0	36	0	22	0	0	13	0	0	1	0	0	0	0	0	0	Rosen, Daniel	PT
CVTE-111 Cardiovascular Physiology II																			
6608		4.0	36	0	18	0	0	16	0	0	1	0	1	0	0	0	0	Potter, Helen	
CVTE-112 Medical Instrumentation II																			
9292		4.0	11	0	5	0	0	6	0	0	0	0	0	0	0	0	0	Rosen, Daniel	PT
9293		4.0	11	0	5	0	0	6	0	0	0	0	0	0	0	0	0	Rosen, Daniel	PT
9294		4.0	14	0	12	0	0	2	0	0	0	0	0	0	0	0	0	Rosen, Daniel	PT
Course Total			36	0	22	0	0	14	0	0	0	0	0	0	0	0	0		
CVTE-113 Lab Practicum & Profic Test II																			
6612		2.0	15	0	15	0	0	0	0	0	0	0	0	0	0	0	0	Potter, Helen	
6613		2.0	11	0	10	0	0	1	0	0	0	0	0	0	0	0	0	Ridgway, Donald	PT
6614		2.0	11	0	10	0	0	1	0	0	0	0	0	0	0	0	0	Ridgway, Donald	PT
Course Total			37	0	35	0	0	2	0	0	0	0	0	0	0	0	0		
CVTE-210 Med Instrumentation IV																			
6616		3.0	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0	Potter, Helen	
6617		3.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	Schwend, Raymond	PT
Course Total			29	0	29	0	0	0	0	0	0	0	0	0	0	0	0		
CVTE-211 Diag Proc II,Adult Echocardio																			
6618		4.0	18	0	8	0	0	9	0	0	1	0	0	0	0	0	0	Potter, Helen	
CVTE-212 Interven Proced Invasiv Cardio																			
6619		4.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	1	Kraus, Daniel	PT
CVTE-213 Diagnostic Proced II-Vascular																			
6620		4.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	Garcia, Edgar	PT
CVTE-215 Clinical Practicum III																			
6621		5.0	40	0	40	0	0	0	0	0	0	0	0	0	0	0	1	Barrow, Elizabeth	
CVTE-217 Inv Medical Instrumentation II																			
6622		2.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	1	Barrow, Elizabeth	
CVTE-218 Intracardiac Electrophysiology																			
6623		2.0	11	0	9	0	0	2	0	0	0	0	0	0	0	0	1	Barrow, Elizabeth	
Subject Total			328	0	262	0	0	62	0	0	3	0	1	0	0	0	4		

Grade Distribution by Division

School: Grossmont College -- Term: 2014SP -- Division: G08 -- Subject: All Subjects -- Course: All Courses

Section N = Night ** = Not Valid for ADA	S.T. Wks	Hrs	Enrollment	A+	A	A-	B+	B	B-	C+	C	D	F	Pass	NoPass	Inc	W	Instructor	
CVTE-106 Advanced Ecg Theory																			
6604N		5.0	26	0	20	0	0	3	0	0	0	0	3	0	0	0	0	Marshall, Ward	PT
CVTE-108 Advanced Cardiac Monitoring																			
6606N		2.0	26	0	23	0	0	0	0	0	0	0	3	0	0	0	0	Marshall, Ward	PT
CVTE-110 Physical Prin Medicine II																			
6607		2.0	31	0	15	0	0	12	0	0	4	0	0	0	0	0	0	Rosen, Daniel	PT
CVTE-111 Cardiovascular Physiology II																			
6608		4.0	31	0	14	0	0	14	0	0	3	0	0	0	0	0	0	Potter, Helen	
CVTE-112 Medical Instrumentation II																			
9292		4.0	11	0	7	0	0	4	0	0	0	0	0	0	0	0	0	Ridgway, Donald	PT
9293		4.0	9	0	5	0	0	3	0	0	1	0	0	0	0	0	0	Ridgway, Donald	PT
9294		4.0	13	0	12	0	0	1	0	0	0	0	0	0	0	0	0	Potter, Helen	
Course Total			33	0	24	0	0	8	0	0	1	0	0	0	0	0	0		
CVTE-113 Lab Practicum & Profic Test II																			
6612		2.0	13	0	13	0	0	0	0	0	0	0	0	0	0	0	0	Potter, Helen	
6613		2.0	11	0	7	0	0	4	0	0	0	0	0	0	0	0	0	Rosen, Daniel	PT
6614		2.0	9	0	9	0	0	0	0	0	0	0	0	0	0	0	0	Rosen, Daniel	PT
Course Total			33	0	29	0	0	4	0	0	0	0	0	0	0	0	0		
CVTE-210 Med Instrumentation IV																			
6616		3.0	15	0	14	0	0	0	0	0	0	0	1	0	0	0	0	Barrow, Elizabeth	XP
6617		3.0	11	0	11	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	
Course Total			26	0	25	0	0	0	0	0	0	0	1	0	0	0	0		
CVTE-211 Diag Proc II,Adult Echocardio																			
6618		4.0	14	0	7	0	0	7	0	0	0	0	0	0	0	0	0	Potter, Helen	
CVTE-212 Interven Proced Invasiv Cardio																			
6619		4.0	10	0	9	0	0	1	0	0	0	0	0	0	0	0	0	Kraus, Daniel	PT
CVTE-213 Diagnostic Proced II-Vascular																			
6620		4.0	12	4	2	4	1	0	0	0	0	0	0	0	0	0	0	Schwend, Raymond	PT
CVTE-215 Clinical Practicum III																			
6621		5.0	36	0	34	0	0	0	0	0	1	0	1	0	0	0	0	Barrow, Elizabeth	
CVTE-217 Inv Medical Instrumentation II																			
6622		2.0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	Barrow, Elizabeth	
CVTE-218 Intracardiac Electrophysiology																			
6623		2.0	10	0	4	0	0	5	0	0	1	0	0	0	0	0	0	Barrow, Elizabeth	XP
Subject Total			298	4	216	4	1	54	0	0	10	0	8	0	0	0	0		

Appendix 4

CVT Course to Program SLO Mapping

Course to Program SLO Mapping Document

PSLOs & CVTE Course #'s	**ALL GRADUATES:** Develop and maintain a professional attitude as a Cardiovascular Technologist, striving for excellence in skills and knowledge, sharing knowledge and skills with others, caring for self, caring for and supporting patients, and protecting patients' rights, privacy and dignity. Continue life-long learning habits and professional growth.	**INVASIVE CARDIOLOGY:** Apply principles of cardiovascular anatomy, physiology, pathophysiology and medical instrumentation to perform and interpret diagnostic and interventional studies in the cardiac catheterization laboratory.	**INVASIVE CARDIOLOGY:** Set up, calibrate and operate diagnostic and interventional instrumentation in the Cardiac Catheterization Laboratory: hemodynamic monitoring systems, electrocardiographs, contrast dye injectors, oxcimeters, cardiac pacemakers, cardiac output computers and electrophysiology simulators.	**NON-INVASIVE CARDIOLOGY:** Apply principles of cardiovascular anatomy, physiology, pathophysiology and medical instrumentation to perform, analyze and interpret diagnostic studies: M-Mode, Two-Dimensional, Doppler and Transesophegal cardiac ultrasound studies.	**NON-INVASIVE CARDIOLOGY:** Perform diagnostic cardiac ultrasound studies using standard and Doppler ultrasound instruments equipped with surface and transesophegal transducers. Calculate prescribed hemodynamic function indices for interpretation by the physician.	**VASCULAR TECHNOLOGY:** Apply principles of vascular anatomy, physiology, pathophysiology and medical instrumentation to perform and interpret diagnostic studies: cerebrovascular, peripheral vascular and abdominal vascular.	**VASCULAR TECHNOLOGY:** Perform vascular diagnostic studies using duplex ultrasound, continuous-wave Doppler, arterial and venous plethysmography and photoplethysmography, for testing of cerebrovascular, peripheral vascular and abdominal vascular systems.
100	X	X	X	X	X	X	X
101	X	X	X	X	X	X	X
102	X	X	X	X	X	X	X
103	X	X	X	X	X	X	X
107	X	X	X	X	X	X	X
109	X	X	X				
110	X			X	X	X	X
111	X	X	X	X	X	X	X
113	X	X	X	X	X	X	X
114	X	X	X	X	X	X	X
115	X			X	X		
116	X	X	X				
117	X					X	X
121	X			X	X		
122	X	X	X				
123	X					X	X
221	X			X	X		
222	X	X	X				
223	X					X	X
225	X	X	X	X	X	X	X
231	X			X	X		
232	X	X	X				
233	X					X	X
251	X			X	X		
252	X	X	X				
253	X					X	X
261	X			X	X		
262	X	X	X				
263	X					X	X

Appendix 5

CVT Program Student Resource Survey

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33 displayed, 33 total	Status:	Open
Launched Date:	02/11/2013	Closed Date:	12/13/2014

1. PROGRAM FACULTY: I.A. Faculty teach effectively:

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1. in the classroom.	69.7% (23)	27.27% (9)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
2. in the laboratory.	66.67% (22)	30.3% (10)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
3. in the clinical area.	57.58% (19)	27.27% (9)	15.15% (5)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
						Total Respondents	33		

2. PROGRAM FACULTY: I.B. Faculty number is adequate:

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1. in the classroom.	78.79% (26)	18.18% (6)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
2. in the laboratory.	72.73% (24)	21.21% (7)	3.03% (1)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
3. in the clinical area.	72.73% (24)	24.24% (8)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
						Total Respondents	33		

3. PROGRAM FACULTY

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
I.C. Faculty have good rapport with students.	78.79% (26)	18.18% (6)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
I.D. Faculty help me with academic needs.	87.88% (29)	9.09% (3)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
I.E. Faculty ensure student representation on the program advisory committee.	75.76% (25)	21.21% (7)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
						Total Respondents	33		

4. Comments on Program Faculty:

Total Respondents	9
(skipped this question)	24

5. MEDICAL DIRECTORS

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
II.A. I know who the Medical Director(s) is/are.	63.64% (21)	18.18% (6)	12.12% (4)	3.03% (1)	0% (0)	3.03% (1)	33	n/a	n/a
II.B. The Medical									

Director(s) has/have provided instruction.	45.45% (15)	24.24% (8)	24.24% (8)	0% (0)	0% (0)	6.06% (2)	33	n/a	n/a

Total Respondents 33

6. Comments on Medical Director(s):

Total Respondents 4

(skipped this question) 29

7. SUPPORT PERSONNEL

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
III.A. Tutors assist me as needed.	54.55% (18)	24.24% (8)	9.09% (3)	3.03% (1)	0% (0)	9.09% (3)	33	n/a	n/a
III.B. The admissions personnel assist me as needed.	63.64% (21)	30.3% (10)	6.06% (2)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
III.C. The financial aid personnel assist me as needed.	42.42% (14)	33.33% (11)	6.06% (2)	0% (0)	6.06% (2)	12.12% (4)	33	n/a	n/a
III.D. The academic advisors assist me as needed.	54.55% (18)	30.3% (10)	9.09% (3)	0% (0)	3.03% (1)	3.03% (1)	33	n/a	n/a
III.E. The learning resource personnel assist me as needed.	45.45% (15)	21.21% (7)	15.15% (5)	0% (0)	0% (0)	18.18% (6)	33	n/a	n/a

Total Respondents 33

8. Comments on Support Personnel:

Total Respondents 3

(skipped this question) 30

9. CURRICULUM

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
IV.A. The curriculum covers the necessary lecture content for the concentration for entry level Cardiovascular technologists.	72.73% (24)	24.24% (8)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
IV.B. The curriculum covers the necessary laboratory									

activities for the concentration for entry level Cardiovascular technologist.	60.61% (20)	30.3% (10)	6.06% (2)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
IV.C. The curriculum includes necessary clinical experience for the concentration for entry level Cardiovascualr technologists.	72.73% (24)	18.18% (6)	6.06% (2)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
IV.D. The curriculum includes the necessary content in support courses (e.g. science, general education)	72.73% (24)	24.24% (8)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
IV.E. The curriculum is an appropriate sequence of classroom, laboaatory, and clinical activities.	66.67% (22)	30.3% (10)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a

Total Respondents 33

10. Comments on Curriculum:

Total Respondents 6

(skipped this question) 27

11. FINANCIAL RESOURCES

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
V.A. There are funds to support special student instructional activities.	36.36% (12)	24.24% (8)	18.18% (6)	0% (0)	3.03% (1)	18.18% (6)	33	n/a	n/a

Total Respondents 33

12. Comments on Financial Resources:

Total Respondents 2

(skipped this question) 31

13. FACILITIES: VI.A. CLASSROOMS

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1. Are adequate in size.	87.88% (29)	9.09% (3)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a

2. Have adequate lighting.	90.91% (30)	9.09% (3)	0% (0)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
3. Contain adequate seating.	90.91% (30)	9.09% (3)	0% (0)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
4. Have adequate ventilation.	84.85% (28)	12.12% (4)	0% (0)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
5. Have adequate instructional equipment (e.g., boards, projectors)	87.88% (29)	12.12% (4)	0% (0)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
						Total Respondents	33		

14. FACILITIES: VI.B. LABORATORY

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1. Is adequate in size.	72.73% (24)	24.24% (8)	0% (0)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
2. Has adequate lighting.	84.85% (28)	12.12% (4)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
3. Contains adequate seating.	81.82% (27)	15.15% (5)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
4. Has adequate ventilation.	69.7% (23)	24.24% (8)	0% (0)	6.06% (2)	0% (0)	0% (0)	33	n/a	n/a
5. Activities prepare me to perform effectively in the clinical setting.	66.67% (22)	21.21% (7)	9.09% (3)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
6. Is accessible to students outside regularly scheduled class times.	69.7% (23)	27.27% (9)	0% (0)	0% (0)	3.03% (1)	0% (0)	33	n/a	n/a
7. Is equipped with the amount of equipment necessary for student performance of required laboratory exercises.	63.64% (21)	21.21% (7)	9.09% (3)	3.03% (1)	3.03% (1)	0% (0)	33	n/a	n/a
8. Is equipped with the variety of equipment necessary for student performance of required laboratory exercises.	63.64% (21)	33.33% (11)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a

9. Is equipped with the amount of supplies necessary for student performance of required laboratory exercises.	57.58% (19)	39.39% (13)	0% (0)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
10. Is equipped with the variety of supplies necessary for student performance of required laboratory exercises.	60.61% (20)	36.36% (12)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a

Total Respondents 33

15. VI.C. ANCILLARY FACILITIES

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1. Provide adequate quiet study areas.	57.58% (19)	36.36% (12)	3.03% (1)	0% (0)	0% (0)	3.03% (1)	33	n/a	n/a
2. Provide adequate secure storage for student personal items.	27.27% (9)	21.21% (7)	18.18% (6)	9.09% (3)	6.06% (2)	18.18% (6)	33	n/a	n/a

Total Respondents 33

16. Comments on Facilities:

Total Respondents 4

(skipped this question) 29

17. CLINICAL RESOURCES: VII.A. CLINICAL ROTATIONS

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1.a. The clinical facilities offer an adequate number of procedures for the student to meet clinical objectives.	66.67% (22)	24.24% (8)	6.06% (2)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a
1.b. The clinical facilities offer an adequate									

variety of procedures for the student to meet the clinical objectives.	60.61% (20)	33.33% (11)	6.06% (2)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
1.c. The clinical facilities provide a variety of current equipment.	66.67% (22)	33.33% (11)	0% (0)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
2.a. Each clinical rotation is of sufficient length to enable the student to complete clinical objectives.	66.67% (22)	33.33% (11)	0% (0)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
2.b. Overall, the clinical rotations provide similar competencies to all students.	57.58% (19)	36.36% (12)	6.06% (2)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
						Total Respondents	33		

18. CLINICAL RESOURCES: VII.B. CLINICAL INSTRUCTION

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
1. I receive adequate orientation to assigned clincal areas and procedures.	75% (24)	18.75% (6)	6.25% (2)	0% (0)	0% (0)	0% (0)	32	n/a	n/a
2. Clinical intructors are sufficiently knowledgeable to provide instruction to me.	72.73% (24)	24.24% (8)	3.03% (1)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
3. Clinical instructors direct me in completing the assigned objectives.	75.76% (25)	18.18% (6)	6.06% (2)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
4. Clinical instructors are consistent in their evlautaion of student performance.	69.7% (23)	24.24% (8)	6.06% (2)	0% (0)	0% (0)	0% (0)	33	n/a	n/a
5. Clinical instructors are available to assist me,when	60.61% (20)	36.36% (12)	0% (0)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a

needed.

6. There are sufficient numbers of instructors for the number of assigned students.	69.7% (23)	21.21% (7)	6.06% (2)	3.03% (1)	0% (0)	0% (0)	33	n/a	n/a

Total Respondents 33

19. Comments on Clinical Resources:

Total Respondents 9

(skipped this question) 24

20. LEARNING RESOURCES (program and hospital affiliate)

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
VIII.A. Reference texts are adequate to support assignments.	69.7% (23)	24.24% (8)	3.03% (1)	0% (0)	0% (0)	3.03% (1)	33	n/a	n/a
VIII.B. Journals are adequate to support assignments.	54.55% (18)	33.33% (11)	6.06% (2)	0% (0)	0% (0)	6.06% (2)	33	n/a	n/a
VIII.C. Computer resources are adequate to support the curriculum.	63.64% (21)	27.27% (9)	3.03% (1)	0% (0)	0% (0)	6.06% (2)	33	n/a	n/a
VIII.D. Internet access is adequate to support assignments.	66.67% (22)	30.3% (10)	0% (0)	0% (0)	0% (0)	3.03% (1)	33	n/a	n/a
VIII.E. Databases are adequate to support assignments.	60.61% (20)	27.27% (9)	0% (0)	3.03% (1)	0% (0)	9.09% (3)	33	n/a	n/a

Total Respondents 33

21. Comments on Learning Resources:

Total Respondents 3

(skipped this question) 30

22. PHYSICIAN INTERACTION

	Strongly agree	Generally agree	Neutral (acceptable)	Generally disagree	Strongly disagree	N/A (Not applicable)	Response Total	Points	Avg
IX.A. Physician/student interaction facilitates the development of effective communication skills between	39.39% (13)	42.42% (14)	9.09% (3)	0% (0)	0% (0)	9.09% (3)	33	n/a	n/a

me and physicians.									
IX.B. Physician contact is sufficient to provide me with a physician perspective of patient care.	36.36% (12)	39.39% (13)	15.15% (5)	0% (0)	0% (0)	9.09% (3)	33	n/a	n/a
IX.C. Overall student exposure to physicians in the program is adequate.	33.33% (11)	39.39% (13)	15.15% (5)	3.03% (1)	0% (0)	9.09% (3)	33	n/a	n/a

Total Respondents 33

23. Comments on Physician Interaction:

Total Respondents 4

(skipped this question) 29

24. OVERALL RESOURCES

	Exceptional	Excellent	Adequate	Needing Improvement	Inadequate	Response Total	Points	Avg
Please rate the OVERALL quality of the resources supporting the program.	50% (16)	46.88% (15)	3.12% (1)	0% (0)	0% (0)	32	n/a	n/a

Total Respondents 32

(skipped this question) 1

25. Which resources are the strongest contributors to the program?

Total Respondents 18

(skipped this question) 15

26. Which resources need improvement?

Total Respondents 16

(skipped this question) 17

27. ADDITIONAL COMMENTS

Total Respondents 6

(skipped this question) 27

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS- 2014sp

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

4. Comments on Program Faculty:

1. They have been very supportive in helping me balance home and school responsibilities in order to be successful in the program.
2. The faculty feels like family now! They work great as a team, very effective.
3. Generally the staff is very helpful and responses to all our needs in a timely manner.
4. Knowledgeable and attentive to student needs.
5. Folks that work here are proven experienced technologists. I have found that they put complex ideas into simple terms. I find that they are especially good at culturing critical thinking skills.
6. Faculty are kind and wonderful people. I appreciate their support.
7. Faculty are all approachable and kind, the care for the students and create relationships with each student. Faculty are always helpful.
8. I suggest the program have adequate number of instructors and teach broad subjects, for example pharmacology, psychopathology, cardiac pathology and hemodynamics as separate subjects.
9. It would be better if the Instructor had help during labs.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

6. Comments on Medical Director(s):

1. The best we could ask for.

2. I have only seen them once on campus.
3. Mary Kalafut, MD, is a humble example of an expert in the field. She actually took the time to visit our school and answer questions about stoke, stroke prevention, and recovery. Very helpful as well as approachable.
4. I don't know much about the Medical Directors to comment on them.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

8. Comments on Support Personnel:

1. I was fortunate enough to receive a grant from the Bernard Osher Foundation. Information about scholarships and grants has been made available by the CVT and financial office staff.
2. Support personnel are wonderful people.
3. The program and admission office helps well.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

10. Comments on Curriculum:

1. I am glad that they started our tracks earlier and that clinicals start in the summer as well as pharmacology in the summer
2. I believe medical terminology should be a prerequisite for the program
3. More advanced studies/procedures need to be taught to the students because the job market is expecting a larger variety of studies from entry level technologists.

4. I have found that the core curriculum has been polished over time. It is dynamic with the changes that we see. The fundamentals have been laid down quite thoroughly as well.
5. Curriculum is well presented, not perfect, but very well established.
6. Some of the curriculum is outdated. There needs to be more of an effort to keep current with what is happening in the field rather than, "That is what we've always taught."

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

12. Comments on Financial Resources:

1. no comments
2. I provided my own finances.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

16. Comments on Facilities:

1. The laboratory needs to update their ultrasound equipment, but unfortunately is not possible with the budget.
2. The computer lab has been helpful when working together with fellow students on group projects. The ultrasound machines are functional and produce readily interpretable images for evaluation by instructors. A new machine was just purchased as well; quite fancy!
3. Facilities are good and supportive.
4. The Scan Lab gets way too hot even with fans running. Most of the equipment is outdated.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

19. Comments on Clinical Resources:

1. great
2. I feel very lucky to have been at the clinical sites I worked at; my proctors were very helpful in providing adequate scan time. They are very knowledgeable and I feel they were an important addition to my education.
3. Excellent clinical experience at Scripps Memorial.
4. Experience depends on the clinical-site assigned. Some sites are more student-friendly than others.
5. I am extremely pleased with my clinical experience! I have received 3 days a week at a very busy hospital. My preceptors are very critical; this is very helpful at streamlining my technique. I feel confident at this point that I would be able to approach any protocol on any patient with confidence!
6. Clinical Resources are good and adequately support my experiences.
7. These ratings do not include Sharp Grossmont. Their staff/instructors were horrible in assisting and instructing the students.
8. In the hospitals, there a number of techs but have limited time to teach students because they have to scan many patients.
9. At my clinical site, 2 students came from another site and my scan time was cut back considerably. Too many students at my site.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

21. Comments on Learning Resources:

1. good
2. I have found links to peer reviewed sources both on my own, as well as with the guidance of instructors. I feel that I can comfortably navigate to seek out information that I need independently.
3. Learning Resources are good and adequate for my needs

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

23. Comments on Physician Interaction:

1. adequate
2. Again, site-dependent. My experience from my clinical site has been positive but not in others I was able to observe.
3. In clinicals, I have explained my exams to interpreting radiologists. I feel very confident in my interpretations and explanations.
4. Physicians are wonderful people and support my leaning.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

25. Which resources are the strongest contributors to the program?

1. Clinical rotations
2. How to image and learn different windows, recognize it on the actual patient, and finding windows.
3. open scan lab
4. The professors are the strongest contributors. They are always helpful and available to the students with clinical or academic needs.
5. Clinical experience is crucial and a very strong contributor to the program.

6. The faculty really cares about our education; they work hard to assure that we understand all the information given. I also feel that once we graduate, they will continue to help us as needed. Being a graduate of the program will stand out to those hiring us based on the reputation of the program. The current faculty is doing a great job maintaining this image.
7. Experience at clinicals and Wednesday night scan labs.
8. the curriculum
9. CLINICAL INSTRUCTORS
10. My director was one of the strongest contributor(s) to my overall success.
11. The excellent instructors in school and at certain clinical sites provide extensive knowledge-base to assist the students.
12. clinical assignments
13. Don, Ray, and Liz Barrow. Very enthusiastic group! Dan Rosen too!!!!
14. Faculty
15. The open lab is a great way to get ahead and advance in our learning.
16. Textbooks
17. The instructors are the main contributor to the success of students.
18. The new Vascular Text by Gail Size is excellent.

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents:	33	**Status:**	Open
Launched Date:	02/11/2013	**Closed Date:**	12/13/2014

26. Which resources need improvement?

1. Too much lecture. Need more labs, especially during 1st year.
2. more scan times
3. It would be nice to have more new machines, but they are costly.
4. overall organization of the timeline of events throughout the semester would be helpful, but I feel this is a work in progress

5. Even though clinicals are very good, I think there need to be some set of guidelines and check-offs that should be achieved at clinicals.
6. clinical rotations
7. NEED MORE LAB TIME AND HANDS ON IN THE LAB
8. I feel that many of the lab materials were "out of date" and not accessible to the students. Some items we could not open just "look at".
9. Ultrasound systems need upgrading at the school and certain clinical sites need to be re-assessed in their effectiveness with preparing students.
10. Teacher's selection process needs to be a little stricter; qualification should come first!!
11. Perhaps more flexibility with open labs. Overall, very good!
12. Curriculum
13. Not enough machines for the lab for students.
14. None
15. there should be more number of instructors
16. Vascular syllabus

CVT PROGRAM RESOURCE SURVEY COMPLETED BY STUDENTS

Respondents: 33 **Status:** Open

Launched Date: 02/11/2013 **Closed Date:** 12/13/2014

27. ADDITIONAL COMMENTS

1. What a ride I have had... great fun...
2. Recommend the adding of additional pre-reqs for the programs, such as Medical Terminology class and Basic EKG class.
3. none
4. Pardon my typos!
5. Overall, I am very satisfied with the level of knowledge and experiences that I am receiving. I appreciate this program, and wish it well for future students.
6. overall the program is excellent

Appendix 6

Headcounts for Degrees and Certificates Awarded

Cardiovascular Technology							
CVTE	**Academic Year**						
	08/09	09/10	10/11	11/12	12/13	13/14	**Total**
Degrees	33	28	28	29	30	37	185
Certificates	35	30	30	28	33	2	158

California Community Colleges Chancellor's Office
Program Awards Summary Report

CARDIOVASCULAR TECHNOLOGY (121300)	Annual 2008-2009	Annual 2009-2010	Annual 2010-2011	Annual 2011-2012	Annual 2012-2013	Annual 2013-2014
Grossmont Total	73	62	56	59	65	45
Associate of Science (A.S.) degree	36	32	26	29	31	39
Certificate requiring 60+ semester units	4	2	1	2		
Certificate requiring 30 to < 60 semester units	33	28	29	28	34	6

Appendix 7

Cardiovascular Technology Advisory Committee
CVT Advisory Meeting Minutes, May 2015

Standards and Guidelines

for the Accreditation of Educational Programs in Cardiovascular Technology

Essentials/Standards initially adopted 1985; revised in 2003, 2009, and 2010
Adopted by the
American College of Cardiology
American College of Radiology
American Society of Echocardiography
Society for Vascular Ultrasound
Society of Invasive Cardiovascular Professionals
and
Commission on Accreditation of Allied Health Education Programs

The Commission on Accreditation of Allied Health Education Programs (CAAHEP) accredits programs in cardiovascular technology education, upon the recommendation of the Joint Review Committee on Education in Cardiovascular Technology (JRC-CVT).

II. Program Goals

A. Program Goals and Outcomes
There must be a written statement of the program's goals and learning domains consistent with and responsive to the demonstrated needs and expectations of the various communities of interest served by the educational program. The communities of interest that are served by the program must include, but are not limited to, students, graduates, faculty, sponsor administration, employers, physicians, and the public.

Program-specific statements of goals and learning domains provide the basis for program planning, implementation, and evaluation. Such goals and learning domains must be compatible with both the mission of the sponsoring institution(s), the expectations of the communities of interest, and nationally accepted standards of roles and functions. Goals and learning domains are based upon the substantiated needs of health care providers and employers, and the educational needs of the students served by the educational program.

B. Appropriateness of Goals and Learning Domains
The program must regularly assess its goals and learning domains. Program personnel must identify and respond to changes in the needs and/or expectations of its communities of interest.

An advisory committee, which is representative of these communities of interest named in these **Standards**, must be designated and charged with the responsibility of meeting at least annually, to assist program and sponsoring institutional personnel in formulating and periodically revising appropriate goals and learning domains, monitoring needs and expectations, and ensuring program responsiveness to change.

Role	Name	Organization
Admin	Debbie Yaddow	Grossmont College
	Katrina VanderWoude	Grossmont College
Employers	Marguerite Elfman	Alvarado Hospital
	Angelle Romero	Scripps Memorial La Jolla
	Tracy Smith	Grossmont Hospital
	Kim Cook	Grossmont Hospital
	Peter Hogan	Grossmont Hospital

Role	Name	Organization
	Maureen Yucelt	Scripps Green Hospital
	Michelle Barden	Scripps Green Hospital
	James Phan	Scripps Mercy San Diego
	Mary Lou Upton	San Diego Cardiac Center
	Donna Dasinger	Sharp Memorial Hospital
	Dan Sullivan	Sharp Chula Vista
	Glenn Herring	Palomar Hospital
	Haley Arguelles	Sharp Rees-Stealy
Faculty	Liz Barrow	Grossmont College
	Helen Potter	Grossmont College
	Dan Rosen	Grossmont College
	Ray Schwend	Grossmont College
	Alex Kotsyubko	Grossmont College
	Edgar Garcia	Grossmont College
	George Mesa	Grossmont College
	Mike Botha	Grossmont College
	Diana Tigner	Grossmont College
	Karoline Sato	Grossmont College
	Tina Gordon	Grossmont College
	Teri Dittrich	Grossmont College
Public	Don Ridgway	Professor Emeritus
	Rick Kirby	Professor Emeritus
	Barbara Dodd	retired RN
Physicians	Ronald Goldberg	Cardiologist, Private Practice
	Mary Kalafut	Neurologist, Scripps Clinic
Grads	Gary Mihalko	Class 2014 Echo
	Bre Suzuki	Class 2013 Vascular
	Joey Horvitz	Class 2014 Vascular
	Sam Rim	Class 2013 Vascular
	Anna Lam	Class 2014 Echo
	Oscar Ocampo	Class 2014 Invasive
	Sam Anton	Class 2014 Invasive
	Linda Salazar	Class 2012 Invasive
Students	Suzie Humphrey	Class 2016 Officer
	James Traher	Class 2016 Officer
	Regina Garcia	Class 2016 Officer
	Jennifer Nguyen	Class 2016 Officer
	Tristyn Birmingham	Class 2015 Officer
	Chantelle Schwerdtfeger	Class 2015 Officer
	Danya Willms	Class 2015 Officer
	Brianna Morgan	Class 2015 Officer

CVT Advisory Meeting Minutes
May 14, 2015
5:30-7:30 pm

Attendees: Barbara Dodd, Brianna Morgan, Chantelle Schwerdtfeger, Dan Rosen, Debbie Yaddow, Don Ridgway, Gary Mihalko, Helen Potter, James Phan, James Traher, Jennifer Nguyen, Joey Horvitz, Dr. Katrina VanderWoude, Liz Barrow, Mary Lou Upton, Regina Garcia, Suzie Humphrey, Teri Dittrich, Tina Gordon, Tristyn Birmingham and Kristin Stafford.

I. Welcome: Liz Barrow introduced our Vice President, Dr. Katrina VanderWoude, to speak.

II. State of the College: Dr. VanderWoude congratulated the CVT Program for its continued success. She stated that graduation is upon us, and Grossmont College is honoring 3,315 degrees this year. She announced the upcoming building projects, i.e., the communications building and the theatre arts building will soon have 350 seats. Further, she stated, our presidential search is still in progress and hoping to have a new president by July 1st, 2015. She announced the health professions "students of note" that were being honored the following day for their outstanding strengths.

III. State of the Division: Debbie Yaddow, Dean Allied Health and Nursing announced the Cardiovascular Technology Program is doing phenomenal. CVT Grants have allowed us to purchase 2 more echo/ultrasound machines, increasing our total to 4, and we are hopeful to obtain 2 more machines. Her vision for CVT is to update our labs to state-of-the-art equipment so our students are well trained and equipped. Looking at setting new equipment goals, i.e., 3 year goal, 5 year goal and so on. Debbie Yaddow thanked the CVT faculty and announced the job market is turning around and our students are getting jobs!

IV. CVT Class Data: Liz Barrow announced the CVT class of 2017 has been seated and there will be a total of 42 students starting in the fall. Liz announced the CVT class of 2016 started with 46 students; 4 students stopped out; 1 student backed out for 2nd track and 43 students are moving forward to the 2nd year. There are 16 Echo students; 13 Vascular students and 14 Invasive students. Class of 2015 started with 44 students; 13 students stopped out and there were 31 graduates. Graduates included 13 Echo students; 10 Vascular students and 8 Invasive students. CVT's Division Meeting is scheduled for August 12th, 2015 from 5:00 to 7:00pm.

V. Track Updates:

a. Echo: (Helen Potter) Update on Class of 2014 –14 students passed their ARDMS and 8 students already have jobs. Currently, class of 2015 – 13 students passed their ARDMS and 3 students already have jobs. Students can apply for their ARDMS 60 days before their graduation and 5 of her 2015 graduates have passed already. Passing the ARDMS early, before graduation, looks great on the student's resume. Class of 2016 – 16 current students.

b. Vascular: (Dan Rosen) Update on Class of 2014 –11 graduates; 7 of 11 students have achieved RVT; 5 of 11 are working as Vascular Techs. Currently, class of 2015 there are 10 Vascular students; 5 of 10 students achieved RVT and 2 of 10 are working per diem. Currently, class of 2016 there are 11 students.

c. Invasive: (Liz Barrow) Update on class of 2014 –10 graduates; 6 of 10 students have achieved RCIS ; 9 of 10 are working as Cath Techs. Currently, class of 2015 there are 8 Invasive students; 1 of 8 students passed RCIS; 6 of 8 students already have jobs. Currently, class of 2016 there are 14 students.

VI. Equipment Update:

a. New heart modules, one for each classroom, scan lab and EKG
b. Cath Fast simulators (6)
c. Dr. Kern's DVD "Cath Lab Essentials"
d. Davies CD's for SPI exam
e. Bid out for Mac Lab upgrade
f. Ultrasound equipment – preventative maintenance this year showed us 4 machines are about ready to leave the program permanently (Philips Sonos 1-3, HDI 5000)
g. Bid out for two Philips IU22
h. Granted Perkins funding for next fiscal year to obtain an additional ultrasound machine
i. Waiting to hear from committee about activity proposal of another ultrasound machine purchase

VII. Curriculum Updates:

a. Invasive will be using new "Grossman" text
b. All changes reported last year are present in the 2014-1015 college catalog
c. Found a couple glitches to fix and seeking a way to gather entire class during second year
d. Completed workshops for resume writing – instruction was successful; however, there was low attendance.

VIII. Curriculum Updates Report of Scripps New Grad Program: James Phan, representing Scripps Hospital, announced that Scripps is placing new graduate students, currently. Students must have 2 years experience to get into Scripps; however the CVT Program through Scripps has created opportunities for students to train at Scripps and become outstanding techs. They are currently accepting 4 students total; 2 vascular students and 2 echo students. James Phan handed out Scripps Program Informational sheets (3 sheets), attached.

IX. Suggestions for program improvement:

a. Think of ways to grow over the next year, i.e., pacemaker rep - EP
b. Schedule guest speakers to come to Grossmont College and showcase our program, our equipment, etc. We can pay speakers to come speak at Grossmont College.
c. Echo society chat room – pay proctors
d. CVT program connected to SDMS
e. Current student's input was that he really enjoys speakers, incorporate more diversity.
f. Invasive field – watchman and micro clips coming out; bring in rep and teach students how to load and prep devices and monitor patients. Possibly do a weekend seminar; pay a rep to come for (2) eight hour days; bring us the equipment so we can have hands-on experience. Involve interest in the whole community. Get a speaker for each track.
g. Suggestion of students having their SPI before starting their clinicals.

h. Students have changed their level in professionalism. Summer school has helped. Possibly distinguish the 1st year from the 2nd year students by a patch or pin on their scrubs.
i. Equipment has new guidelines. 3D probe is not that important? Or, maybe not for the general public, typically for valve cases.
j. Growth of this program – competency in 3D probe.
k. CVT job market is doing great – incorporate new ideas for growth in student's knowledge, i.e., practice on new equipment. Workshops on specialties in the CVT program.
l. Incorporate summer class workshops – interested in an EP Tech – not just Cath lab tech. Have a certificate for participating and passing the workshops.
m. After 2nd year, come back and train in EP?
n. More speakers on campus, once a month, showcasing different aspects of the medical industry. Invite reps and incorporate more certificate workshops besides "core curriculum" – combine different courses and possibly give these courses a 1 credit through the college.
o. Symposiums once a year, open to all health professions.

Meeting adjourned at 7:30 pm

Appendix 8

Conferences, Workshop and Staff Development Activities

Sabbaticals, Conference, Workshop and Staff Development Activities

The entire CVT faculty attends clinical conferences due to the necessity of accumulating continuing medical education credit (CMEs) to support their registry status (RCIS, RDCS, RVT). The full time faculty also attends workshops and conferences on educational topics. Here is a sampling of conferences and workshops attended.

Name	Activity	Relevance
Helen Potter	• Use of Technology in the Classroom (4/10/15) • Use of Technology in the Classroom (10/17/14) • Sharp Grossmont Hospital Heart and Vascular Conference (10/14) • CCI Cardiovascular Educators Forum (4/11/14) • Creative Teaching Strategies Workshop (01/14/13) • Structural Heart Intervention and Imaging 2013 (02/13) • CCI Cardiovascular Educators Forum (03/13, 04/14) • Sharp Grossmont Hospital Heart and Vascular Conference (10/13) • Echo Quality Assurance program SDMS, Grossmont Hospital (10/13)	Helen Potter is a Cardiac Sonographer who still maintains employment at Grossmont Hospital. Her clinical education focus is centered on Echocardiography. Her attendance at workshops and conferences focused on education are to enhance student engagement and to network and learn from other Cardiovascular Educators.
Daniel Rosen	• Mercy St. Louis Vascular Symposium (04/15) • Use of Technology in the Classroom (10/14) • Sharp Grossmont Hospital Heart and Vascular Conference (annually) • ARDMS Educator Roundtable (04/15) • Scripps Green Vascular conference (weekly)	Daniel Rosen is a Vascular Technologist who works clinically at Scripps Green and other Scripps facilities. His clinical education is primarily focused on Vascular topics. Dan also participated on an educators' roundtable focused on ultrasound education.
Liz Barrow	• Clinical Advances in Arrhythmias and Cardiovascular Disease (May 2014, 2015) • Cardiovascular Interventions, Scripps Green (annually) • Online Teaching Conference (06/15)	Liz Barrow was an Invasive Cardiovascular Tech who worked primarily in an Electrophysiology Lab. We are fortunate that one of the best annual Interventional Cardiovascular conferences in the

Name	Activity	Relevance
	• CCI Cardiovascular Educators Forum (04/12, 03/13, 04/14) • CA Perkins workshop on Special Populations (09/13) • Creative Teaching Strategies workshop (01/13, 01/14) • Webinar on Advisory Committees by CAAHEP (01/13) • Cardiovascular Conference of San Diego (02/13) • Creativity and Inspiration, Educational Tools and Resources on the Evolving Internet (04/15)	country is held here in San Diego annually hosted by Scripps Green. Dr. Paul Teirstein who hosts the conference invites all the Invasive CVT students to attend annually free of charge. Other clinical conferences and workshops focused on Electrophysiology keep Liz current with her classroom topics. Workshops focused on improving student engagement with use of technology or teaching strategies has helped to improve classroom activities.
Diana Tigner	• ACC 2015 • Use of Technology in the Classroom (10/14) • Creativity and Inspiration, Educational Tools and Resources on the Evolving Internet (04/15) • Cardiovascular Interventions, Scripps Green (10/14)	Diana Tigner is a working Invasive CVT at Grossmont Hospital. Diana is an engaging instructor and she attends educational workshops to find inspiration and motivation to continually create a stimulating classroom environment.
Edgar Garcia	• The Institute for Advanced Medical Education. "Current Practice of Vascular Ultrasound" 05/01/2011 • Philips Healthcare "Advanced Customer Training General Imaging 3D" 04/25/2013 • Philips Healthcare "Advanced Customer Training General Imaging 2D" 04/26/2013 • Society for Vascular Ultrasound. SVU "Hoag Vascular Imaging Symposium" 02/22/2014 • Society for Vascular Ultrasound. SVU	Edgar Garcia is a Vascular Technologist at Kaiser Permanente.

Name	Activity	Relevance
	"Hoag 3rd Vascular Imaging Symposium" 02/07/2015	
George Mesa	• ASE 2014 (Portland) • ACC 2015	George Mesa is an Echo Tech at UCSD
Teri Dittrich	• American Society Of Echocardiography 26th Annual Scientific Sessions (06/15) • Recommendations for Cardiac Chamber Quantification By Echocardiography In Adults". SD Echo Society (03/15) • Case Studies In Valvular Heart Disease. An Evidence-Based, Real-Life Interactive Experience (06/14) • San Diego Society Of Echocardiography Presents: "UPDATE ON CONTRAST APPLICATIONS FOR ECHOCARDIOGRAPHY" (11/14) • Echocardiography In Mechanical Support Devices (08/14) • American Society Of Echocardiography 25th Annual Scientific Sessions (06/14)	Teri Dittrich is an Echo Tech at UCSD. Teri's list of attended conferences and workshops is extensive. She is actively involved with the ASE here in San Diego and nationally. This is just a sample of what she's attended.
Alex Kotsyubko	• Cardiovascular Interventions, Scripps Green (annually)	Alex Kotsyubko is an Invasive CVT working at Scripps Green Cath Lab.
Tina Gordon	• Cardiovascular Interventions, Scripps Green (10/2014)	Tina Gordon is an Invasive CVT working at Sharp Chula Vista Cath Lab.
Ray Schwend	• Scripps Green Vascular Conference (weekly) • Society for Vascular Medicine (06/14)	Ray Schwend is the lead Vascular Tech at Scripps Green Torrey Pines Clinic.

Appendix 9

Grossmont WSCH Analysis Report

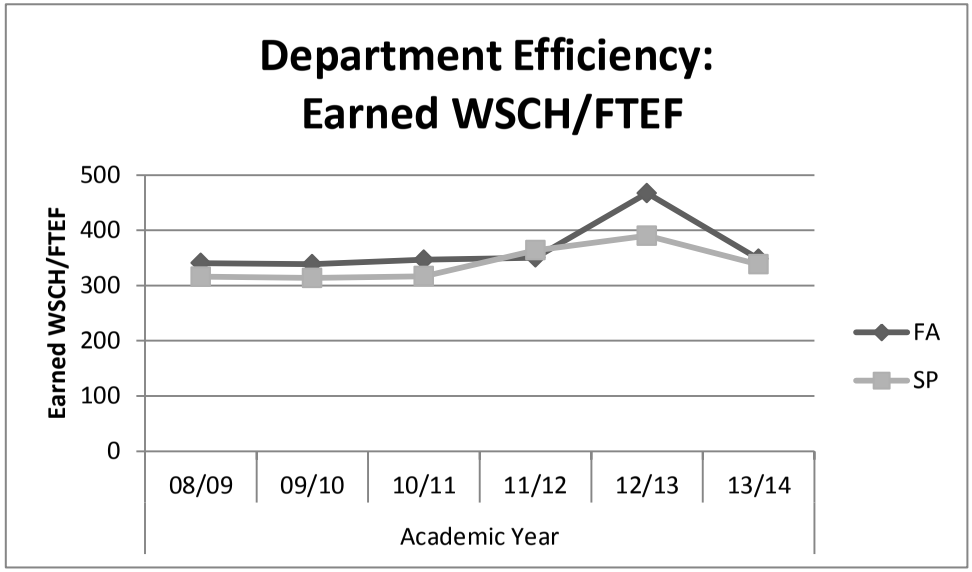
Total

	Fall Semesters					
	FA08	FA09	FA10	FA11	FA12	FA13
Total FTEF	5.97	6.32	6.48	5.92	4.72	5.68
Max WSCH	2334	2539	2396	2360	2250	1713
Max WSHC/FTEF	391.24	401.99	369.58	398.92	477.1	301.43
Max Enrollment	389	429	417	370	379	296
Earned WSCH	2033	2139	2247	2073	2204	1978
Earned WSCH/FTEF	340.78	338.66	346.6	350.41	467.35	348.06
% of Max	87.1	84.25	93.78	87.84	97.96	115.47

	Spring Semesters					
	SP09	SP10	SP11	SP12	SP13	SP14
Total FTEF	6.22	6.62	6.3	5.62	4.82	4.97
Max WSCH	2711	2854	2696	2062	1856	1630
Max WSHC/FTEF	436.13	431.38	427.94	367.17	385.3	328.17
Max Enrollment	495	519	496	444	320	283
Earned WSCH	1964	2075	1996	2044	1880	1680
Earned WSCH/FTEF	315.96	313.63	316.83	363.96	390.28	338.23
% of Max	72.45	72.7	74.04	99.13	101.29	103.07

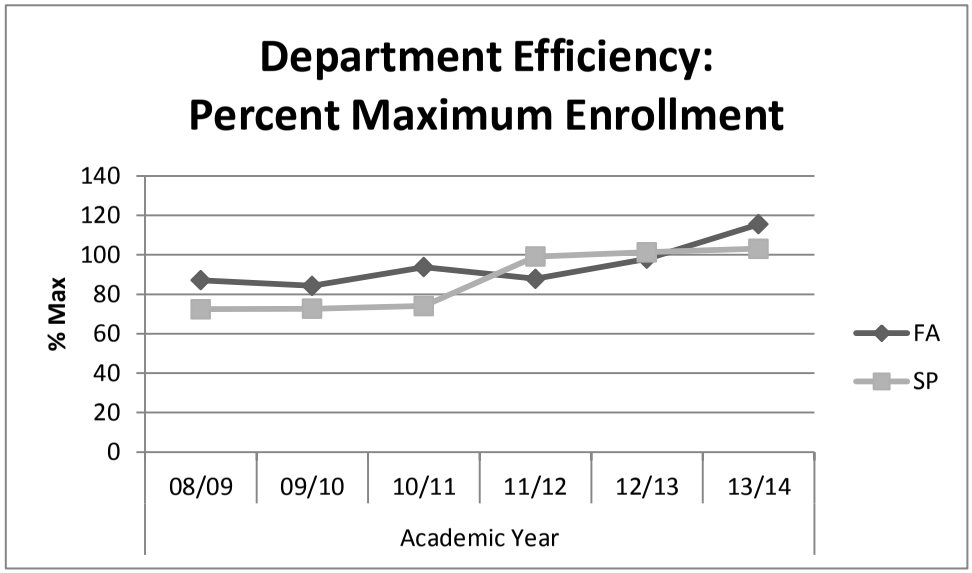
Earned WSCH/FTEF

	Academic Year					
	08/09	09/10	10/11	11/12	12/13	13/14
FA	340.78	338.66	346.6	350.41	467.35	348.06
SP	315.96	313.63	316.83	363.96	390.28	338.23



%Max

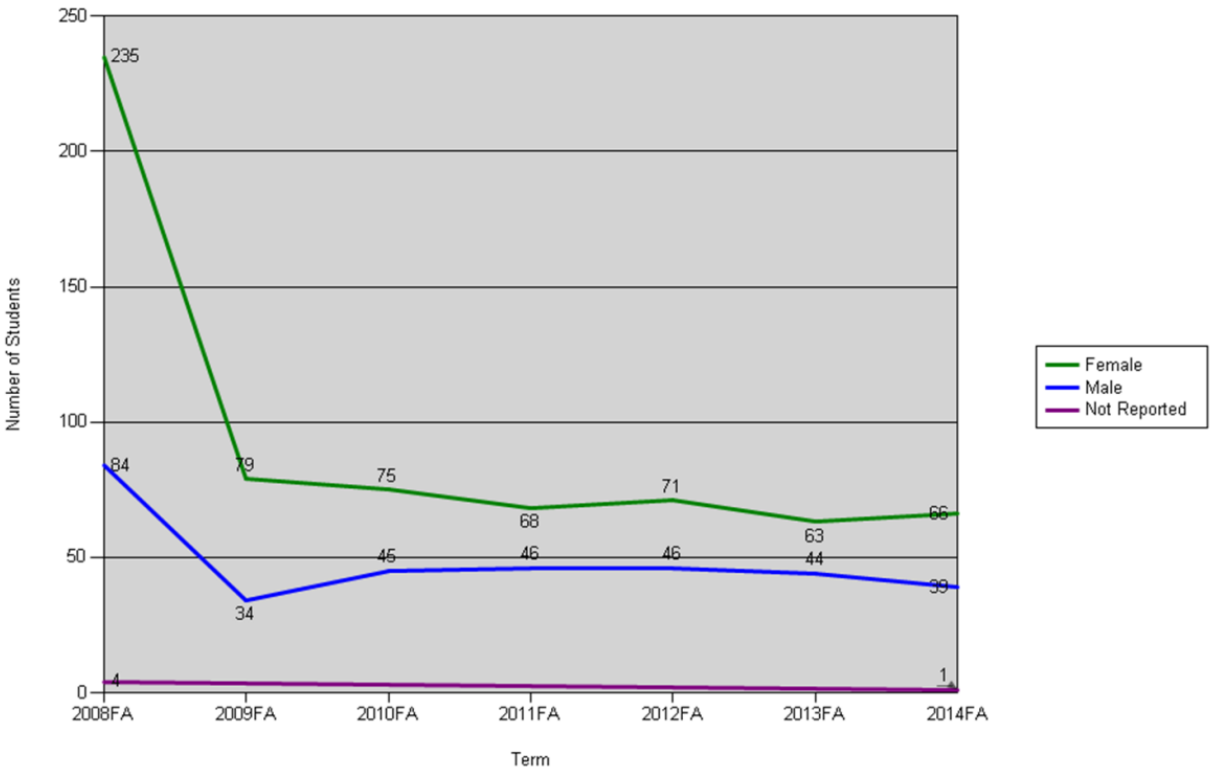
	Academic Year					
	08/09	09/10	10/11	11/12	12/13	13/14
FA	87.1	84.25	93.78	87.84	97.96	115.47
SP	72.45	72.7	74.04	99.13	101.29	103.07



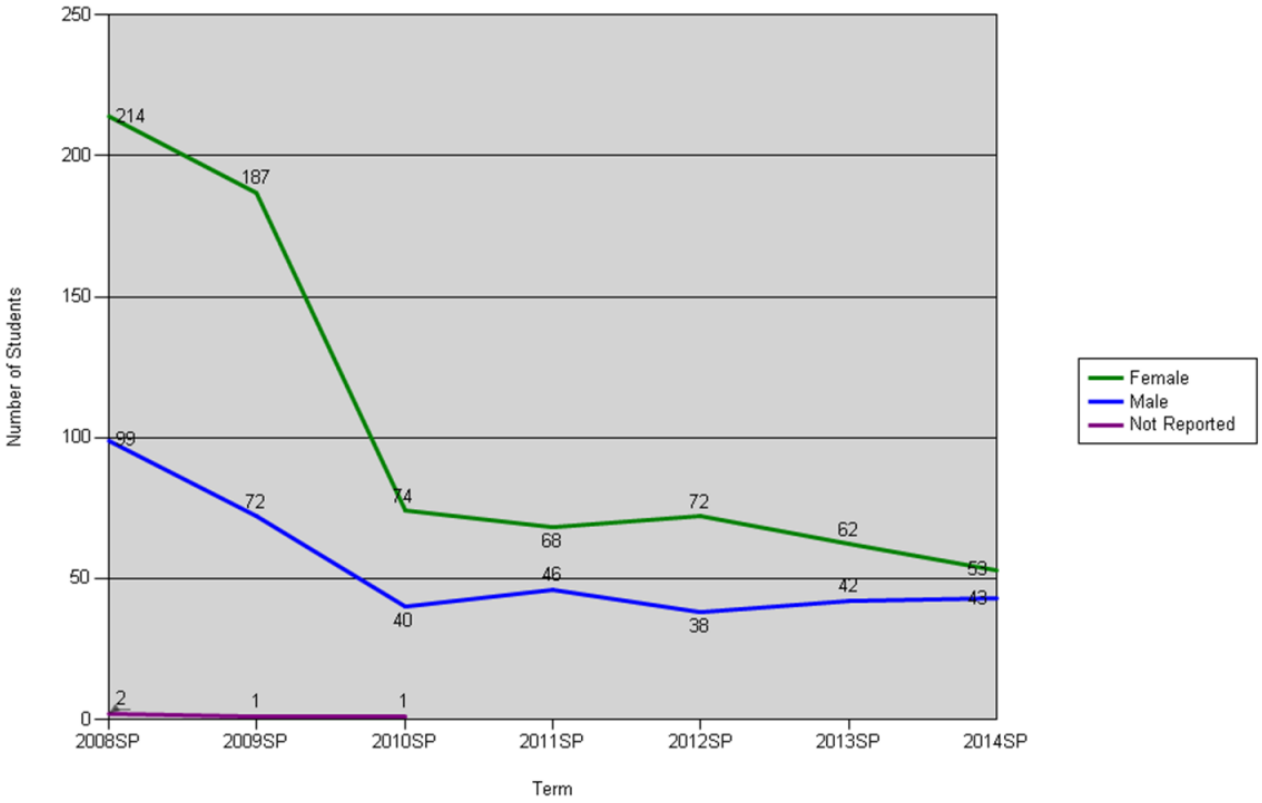
Appendix 10

Success and Retention by Age, Ethnicity and Gender
CVT Job Placement Date
CVT Registry Exam Data

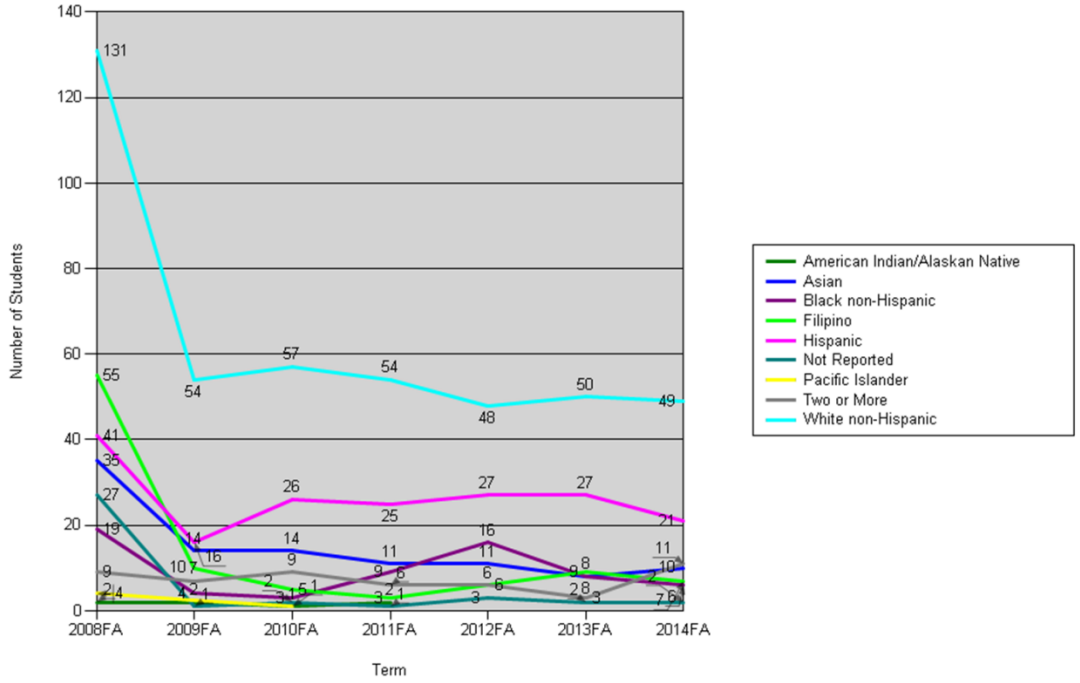
Enrollment by Gender (Unduplicated Student Counts)



Enrollment by Gender (Unduplicated Student Counts)



Enrollment by Ethnicity (Unduplicated Student Counts)



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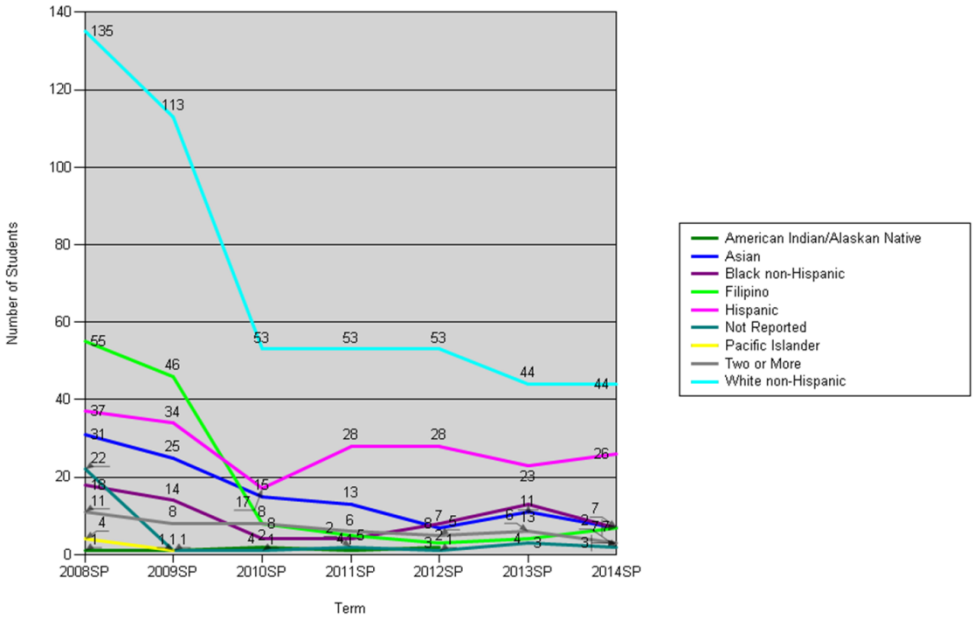

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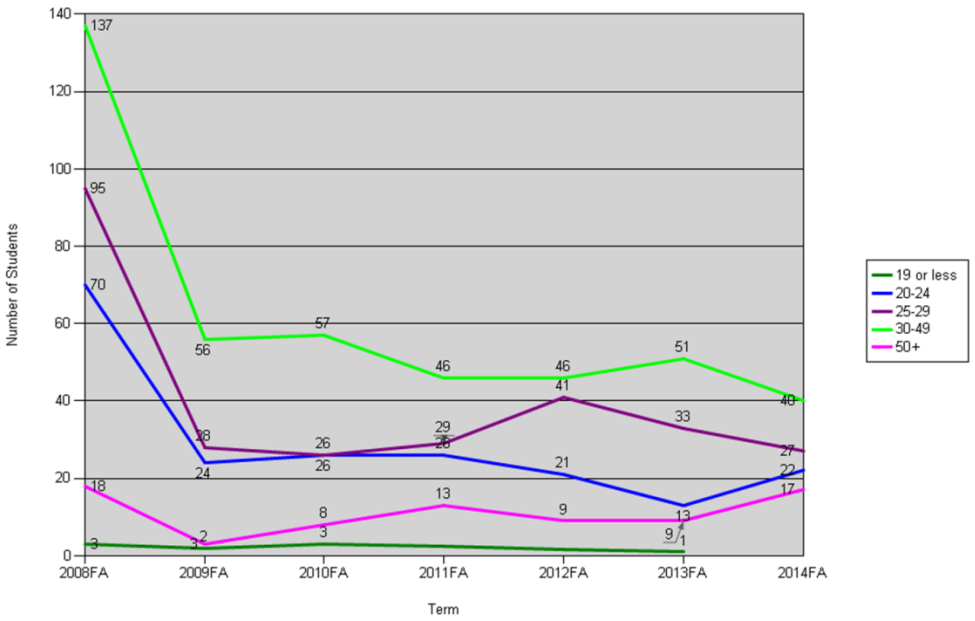
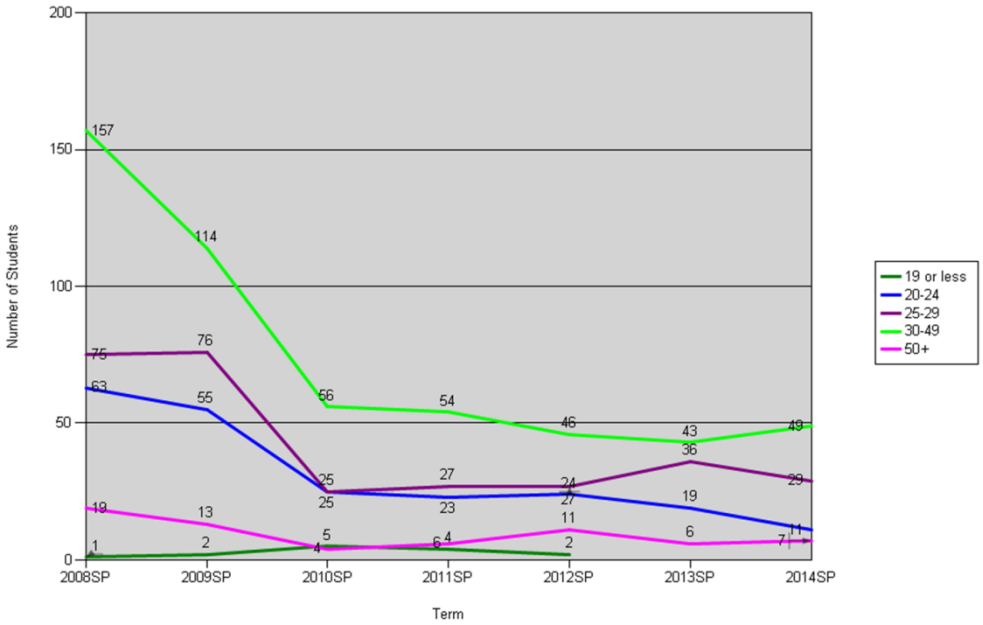
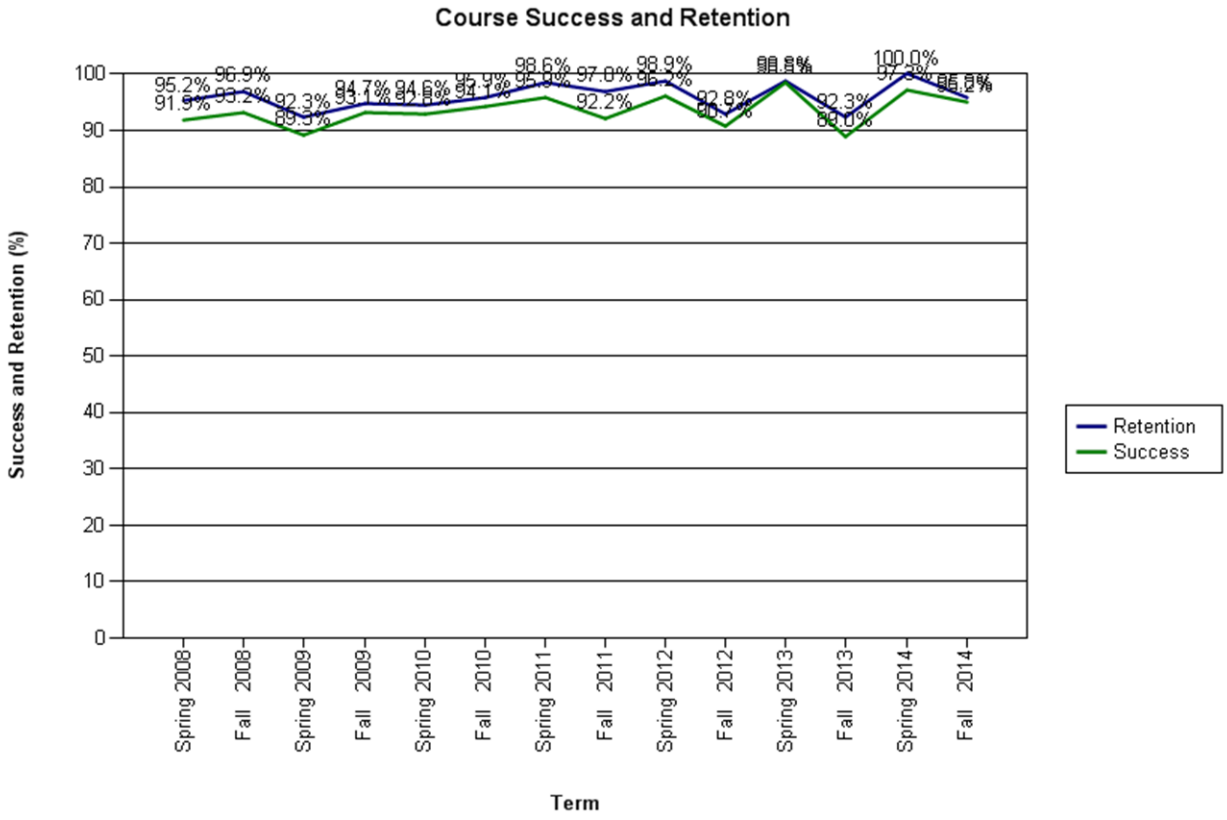
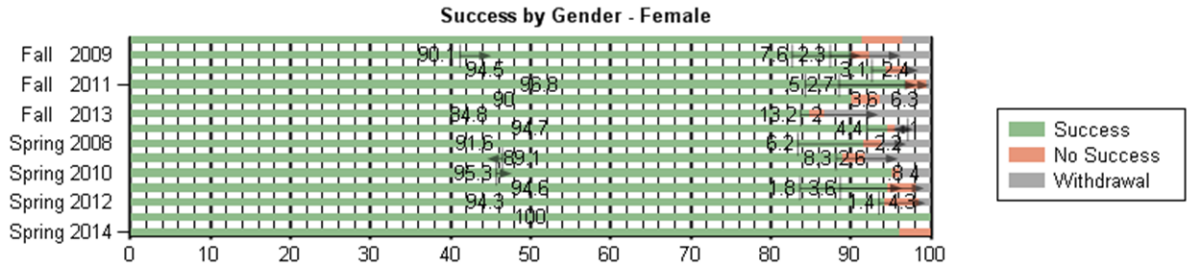
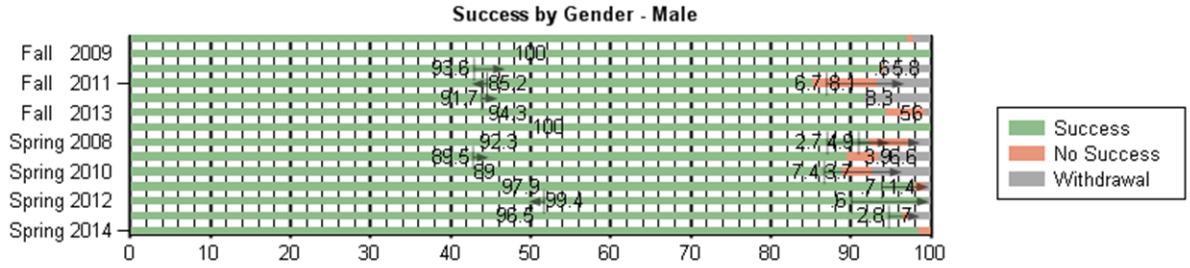


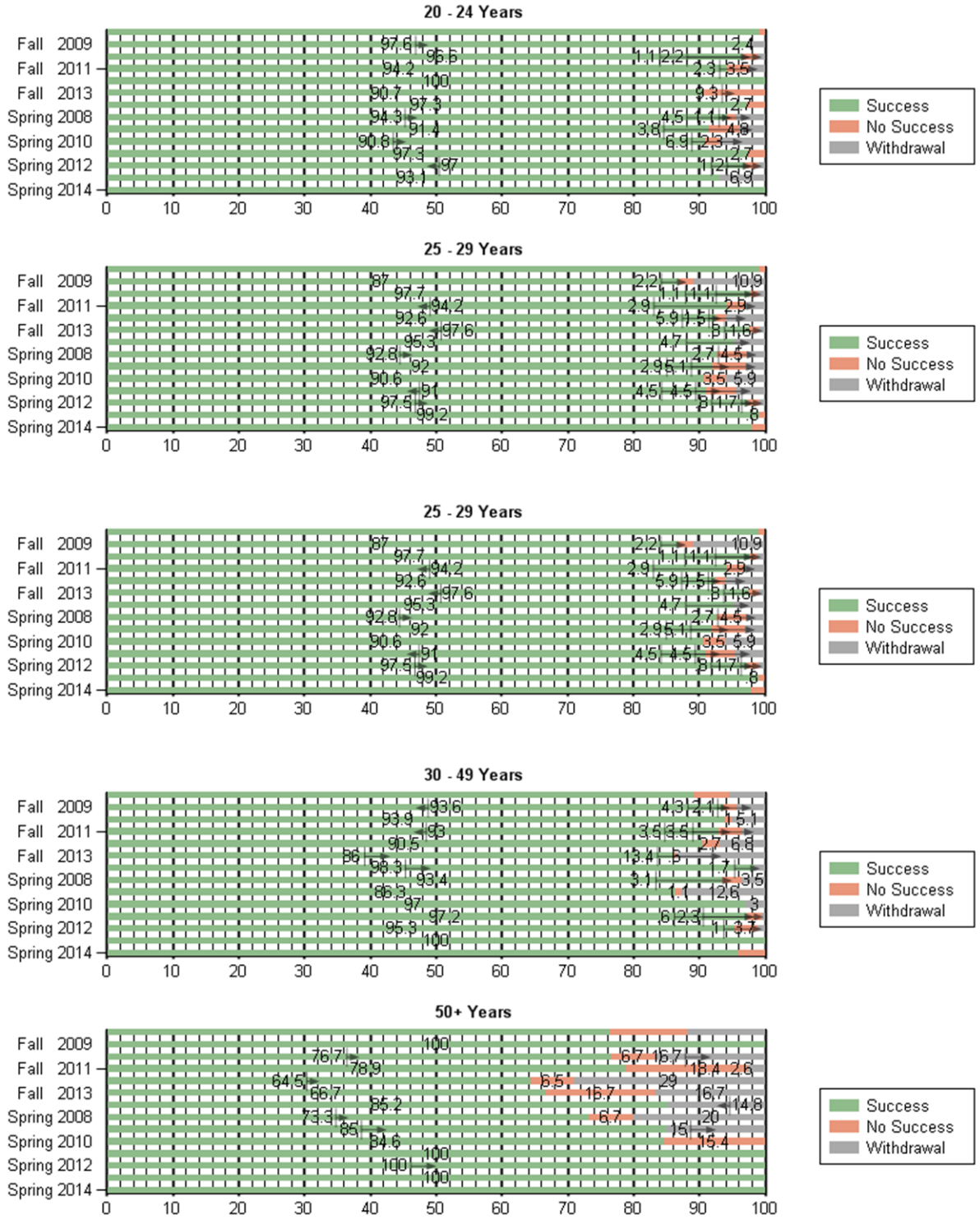
Enrollment by Age (Unduplicated Student Counts)

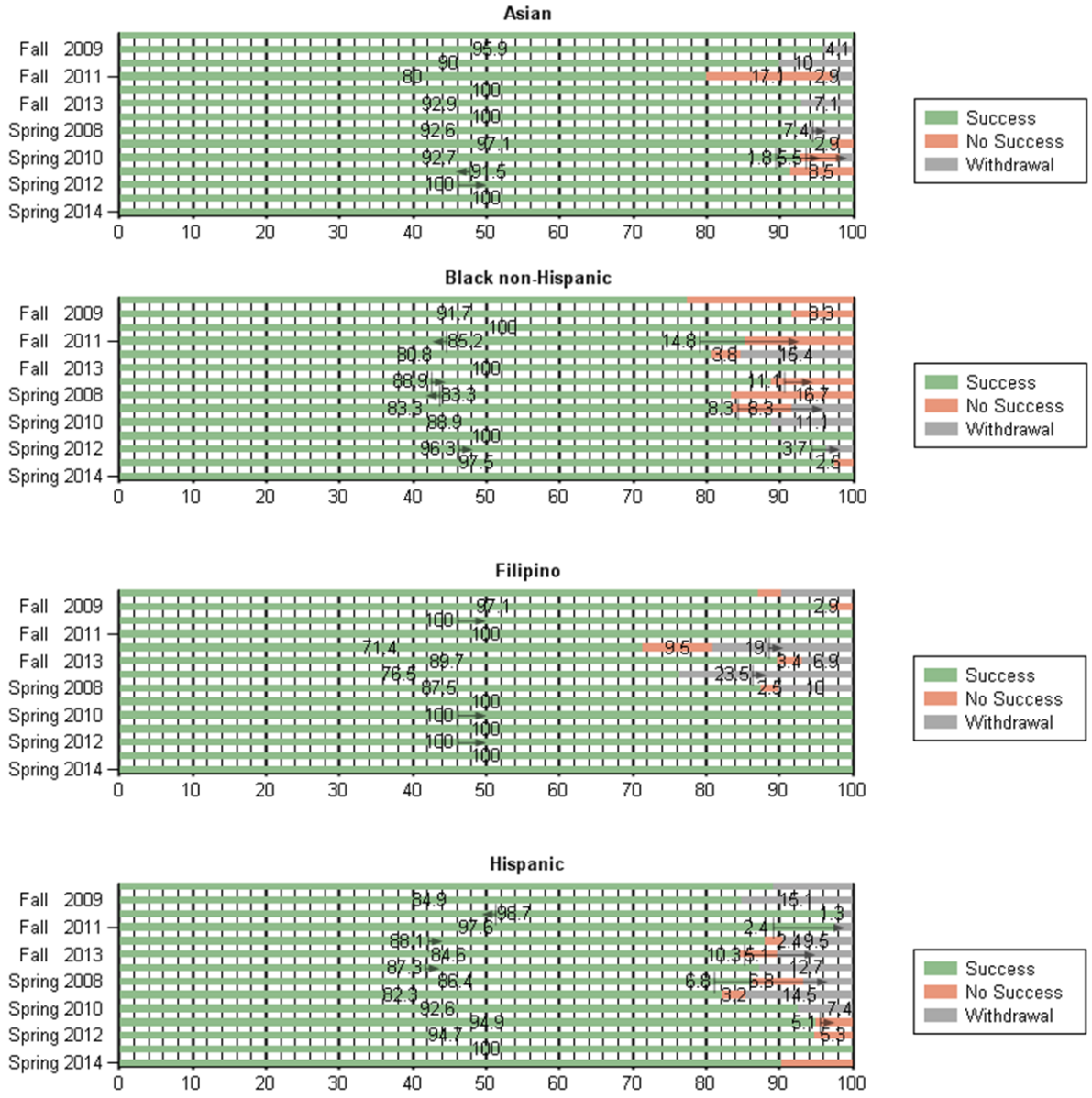


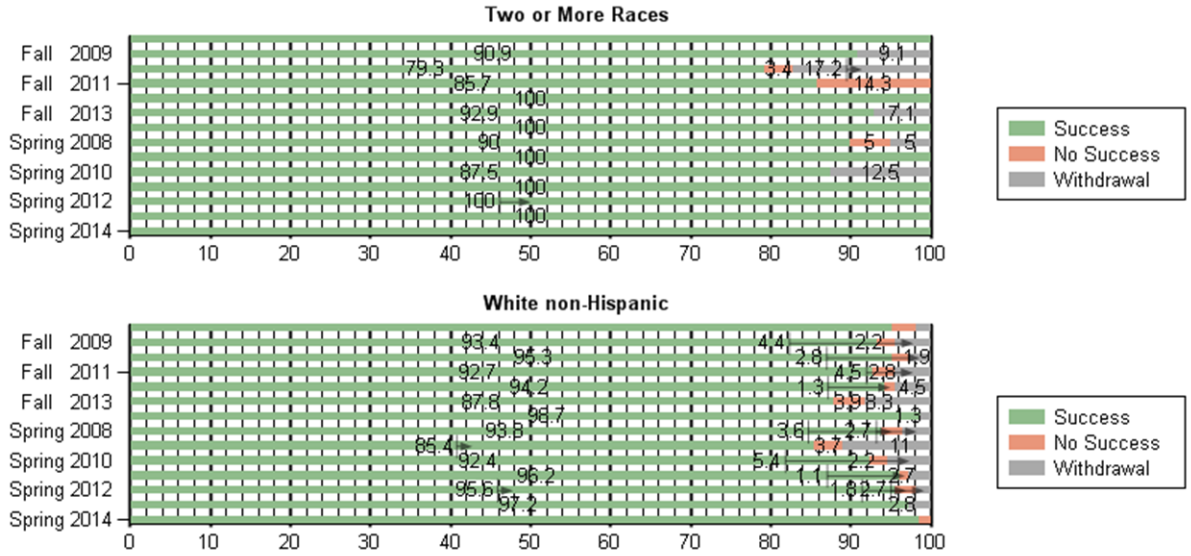

Course Success and Retention
Success and Retention (%)
Term
Retention
Success
Spring 2008
Fall 2008
Spring 2009
Fall 2009
Spring 2010
Fall 2010
Spring 2011
Fall 2011
Spring 2012
Fall 2012
Spring 2013
Fall 2013
Spring 2014
Fall 2014


Success by Gender - Female
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
Success
No Success
Withdrawal

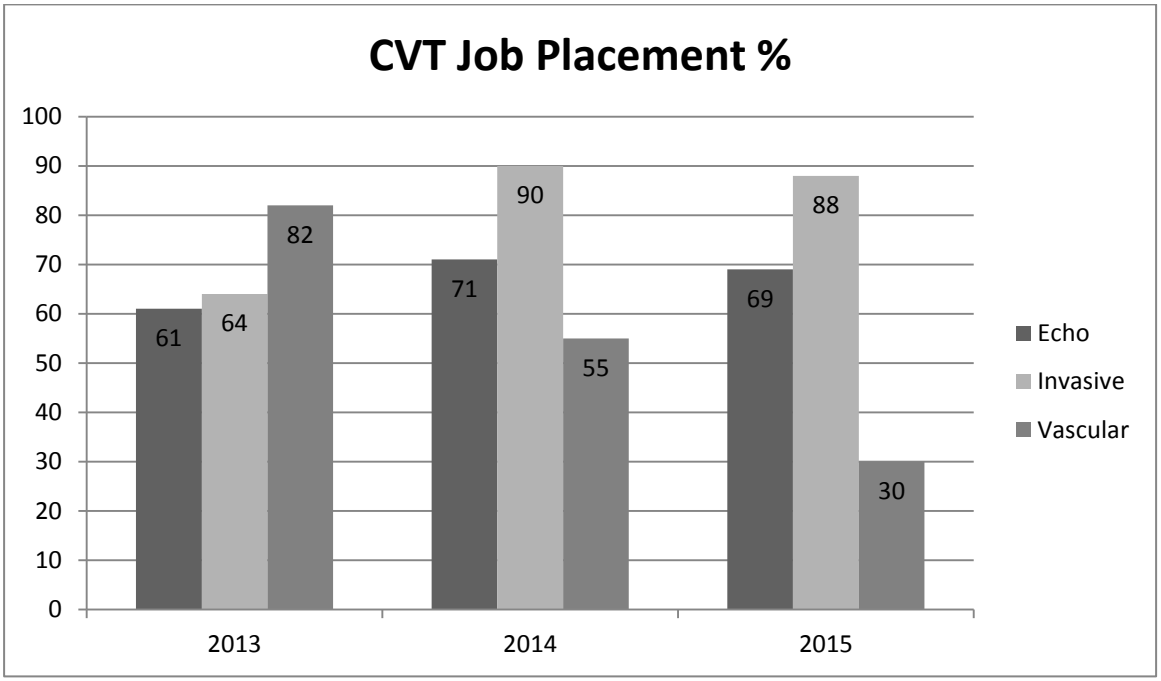

Success by Gender - Male
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
Success
No Success
Withdrawal

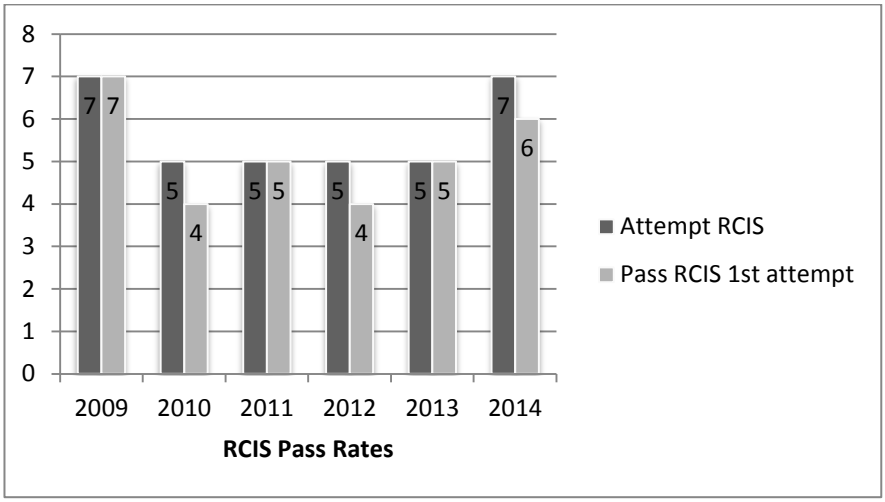

20 - 24 Years
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
25 - 29 Years
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
25 - 29 Years
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
30 - 49 Years
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
50+ Years
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal

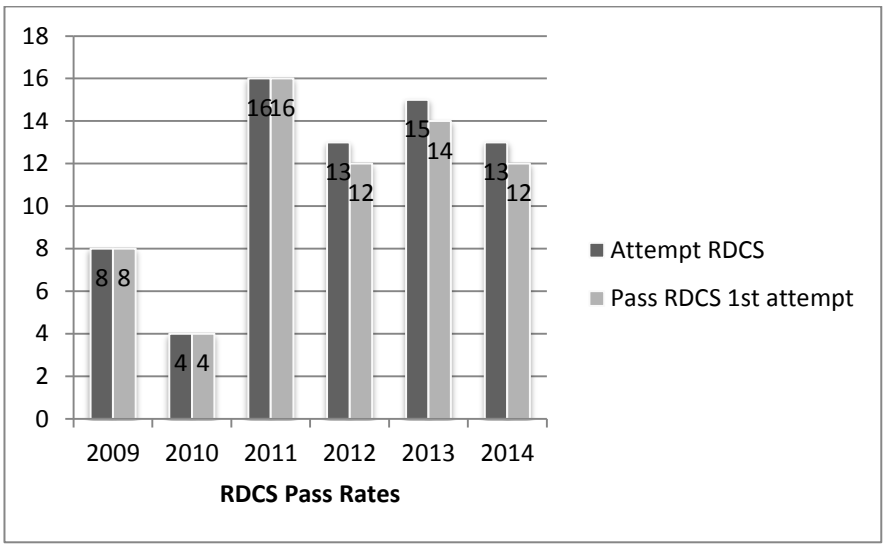

Asian
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
Black non-Hispanic
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
Filipino
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal
Hispanic
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0 10 20 30 40 50 60 70 80 90 100
Success
No Success
Withdrawal

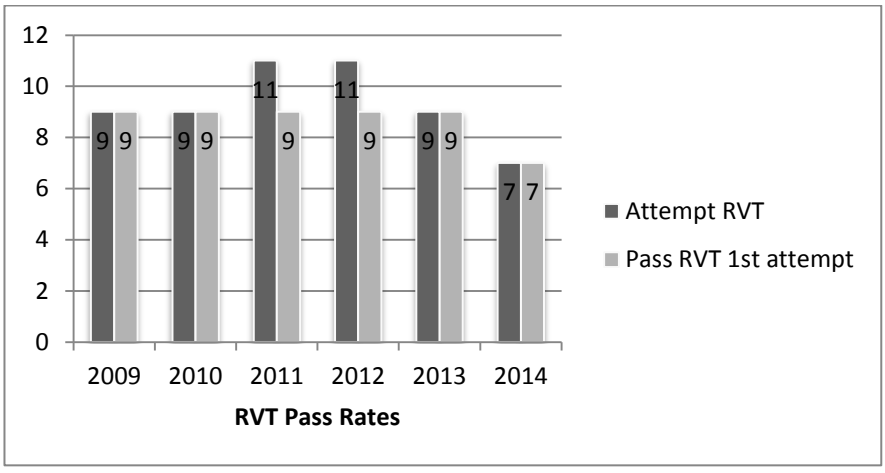

Two or More Races
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0
10
20
30
40
50
60
70
80
90
100
Success
No Success
Withdrawal

White non-Hispanic
Fall 2009
Fall 2011
Fall 2013
Spring 2008
Spring 2010
Spring 2012
Spring 2014
0
10
20
30
40
50
60
70
80
90
100
Success
No Success
Withdrawal


CVT Job Placement %
100
90
80
70
60
50
40
30
20
10
0
61
64
82
71
90
55
69
88
30
2013
2014
2015
Echo
Invasive
Vascular


8
7
6
5
4
3
2
1
0
7 7
5
4
5 5
5
4
5 5
7
6
2009
2010
2011
2012
2013
2014
RCIS Pass Rates
Attempt RCIS
Pass RCIS 1st attempt


18
16
14
12
10
8
6
4
2
0
8 8
4 4
16 16
13
12
15
14
13
12
2009
2010
2011
2012
2013
2014
RDCS Pass Rates
Attempt RDCS
Pass RDCS 1st attempt


12
10
8
6
4
2
0
9 9
9 9
11
9
11
9
9 9
7 7
2009
2010
2011
2012
2013
2014
RVT Pass Rates
Attempt RVT
Pass RVT 1st attempt

Appendix 11

Grossmont College Program Review - Program Review Elements

GCCCD
Grossmont College Program Review
Program Data Elements

Cardiovascular Technology (121300)

	08/09	09/10	10/11	11/12	12/13
Course #					
CVTE 100 CVTE 114 CVTE 218					
CVTE 101 CVTE 120 CVTE 225					
CVTE 102 CVTE 200 CVTE 230					
CVTE 103 CVTE 201 CVTE 240					
CVTE 104 CVTE 202 CVTE 299					
CVTE 105 CVTE 203 CVTE 299A					
CVTE 106 CVTE 205 CVTE 299B					
CVTE 107 CVTE 208					
CVTE 108 CVTE 210					
CVTE 110 CVTE 211					
CVTE 111 CVTE 212					
CVTE 112 CVTE 213					
CVTE 113 CVTE 215					
WSCH/FTES					
Summer- WSCH	352.00	353.00	0.00	131.25	46.00
Fall- WSCH	2,033.00	2,139.00	2,247.00	2,073.00	2,204.00
Spring- WSCH	1,964.00	2,075.00	1,996.00	2,044.00	1,880.00
Total WSCH	4,349.00	4,567.00	4,243.00	4,248.25	4,130.00
Total FTES	144.97	152.23	141.43	141.61	137.67
Unrestricted General Fund Cost	608,916.00	646,837.00	609,854.00	635,189.00	460,014.00
Costs per FTES	4,200.29	4,249.08	4,312.06	4,485.48	3,341.43
Restricted General Fund Cost (Grants, Categorical funds)	144,575.00	101,683.00	67,315.00	0.00	82,954.00

Appendix 12

Fiscal Data: Outcomes Profile

Appendix 12	1. Semester & Year	Fall 2008	Spring 2009	Fall 2009	Spring 2010	Fall 2010	Spring 2011	Fall 2011	Spring 2012	Fall 2012	Spring 2013
Since last PR	2. Enrollment	715	651	379	390	410	365	370	448	377	332
Duplicated	3. Earned WSCH/FTEF	340.78	315.96	338.66	313.63	346.6	316.83	350.41	363.96	467.35	390.28
From WSCH summary	4. Total FTES	144.97		152.23		141.43		141.61		137.67	
Calculated as Total WSCH for FA, SP + SU * 0.0333	5. Cost/FTES	$4,200.29		$4,249.08		$4,312.06		$4,485.48		$3,341.43	
From District: Unrestricted	6. Total Cost/Fiscal Year	$608,916.00		$646,837.00		$609,854.00		$635,189.00		$460,014.00	
Row 4. times per FTES multiplier embedded in table	7. Total Revenue	$661,763.41		$694,904.07		$645,603.91		$646,425.58		$628,440.15	
From District: Restricted	8. Other Revenue	$144,575.00		$101,683.00		$67,315.00		$0.00		$82,954.00	