

***STRICTLY CONFIDENTIAL***

**APDC/ASA EXECUTIVE SUMMARY TEMPLATE**

**FOR PROGRAM REVIEW**

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| **Subject:** | **SENRS** **Program Review Report** | **May 14, 2014** |
| **Program** | **Heavy Equipment Operator** | |
| **Presented by:** | Mary Ann Fader, Acting Dean | |
| **Action:** | **For Discussion / Information** | |

**SOURCE**

• Fleming’s Quality Assurance Process (College Policy 2-207)

• ASA Committee mandate (Board Policy 1-102J) to conduct reviews of existing programs of instruction on an ongoing basis, subject to current regulation, legislation and policy directives

**PROGRAM STRENGTHS**

Students learn to competently operate and maneuver four different pieces of heavy equipment. The program is well supported by industry including membership on the Advisory Committee and donations of equipment.

The current booms in industry (mining, construction, and infrastructure) have provided a strong job market. Students who look for work can find it, especially if they are willing to relocate to the north or west. However, there are many local job opportunities as well.

This program is a hands-on program with more than half of the total program hours spent on the heavy equipment accomplishing a variety of tasks that increase in complexity during the weeks. Students spend approximately 20 hours per week operating five different types of heavy equipment. Small groups of no more than 10 students allow the professor and technologists to work individually with students to assist in the development of skills. Weekly checklists give students feedback so that their operating skills improve steadily throughout the program on each type of machinery. In a focus group of over 25 students, they all reported that they liked the operating portion of the program and wanted more time on the machines. Even though maintenance is an essential job skill, many students did not like taking the course. This has been a consistent complaint for many years and revisions in the course may reduce this complaint. The underlying theme is that the students would rather be on a machine, than in the classroom which attests to the engagement level they experience in the field. Current common block development time is focussing on the current maintenance course to improve student buy-in and increase its relevancy within the program.

As technology systems on the equipment changes, the program is responsive to these new systems and incorporates these changes into the courses. Safety is taught and reinforced with daily system and machine checks. Students must wear their personal protective equipment or they are not allowed onto the practice fields. New assessments have been designed to improve student work on simulators.

A new delivery model was introduced in March 2014 to better align the curriculum. This has included new assessments and culminating activities that become increasingly difficult for students to improve their operating skills. By the end of the program, students are doing several activities that are done in the field such as trenching, basement and other excavating, moving soil, levelling, moving earth into a dump truck and maintaining their equipment. This work is ongoing to improve the delivery model.

**PROGRAM CHALLENGES**

While the large enrolment numbers are positive for the program, these numbers also present several challenges. Equipment must be rented for the additional students, and in a focus group, many students voiced that they feel they did not have enough time on the machinery. Students are paired and need to take turns; the more pairs there are results in less time for each student. Currently, the model has approximately twenty hours each week (200 hours for entire program) in the field for each of the two groups of students. Time is constrained by daylight and the requirement for other courses including safety, maintenance, simulator time, and the general education course. Additionally, the fields are not large enough for more equipment. Field conditions also impact time on machinery.

As hands-on learners, students do not see the relevance of the maintenance and safety courses to their careers. As a result, attendance can be spotty and assignments not completed. Students also start missing other components in their operating courses once they have achieved the minimum of 50%. Recommendations below should increase attendance as well as improve the quality of the work that students are required to do in the program.

Many of the staff in the program are hired because of their industry expertise. As such, they lack some of the basics of effective instruction. This has led to some issues regarding assessments, learning sequencing, and learning activities. As part of the ongoing program improvement, faculty are being encouraged to take part in various professional development opportunities to improve their teaching skills. Due to the continuous three-semester intake, resources such as lynda.com and Faculty Cyber Connections will provide some good tools to improve these skills.

Weather is becoming of increasing concern which is reducing operating time for the students. Many private companies have large structures that do not require heating. These are metal structures that allow for operating of machinery at all times of the year and in all weather conditions.

**KPI RESULTS**

Graduate Satisfaction (KPI 4) was slightly weaker in 2013 with 83% satisfied compared to the college average of 87%. The five year average is 81% with the highest at 83% in 2011. The 2013 report was the lowest in several years since 2009. In 2013, graduate satisfaction was 79% (KPI 11) lower than the college average of 83%. The five-year average for this program is 81%, lower than the five-year average for the college of 83%. This lack of satisfaction may be the result of a higher than average staff turnover. This should stabilize with the new model and the hiring of a full-time professor for the program.

According to the KPIs from 2011-2012, employers are highly satisfied with graduates with 90% reporting very satisfied/ satisfied. Over 80% of graduates were working. However, only 45% were working in related employment 6 months after graduation. The five-year average is 76% are working which is lower than the college average of 84%. The five-year average for the program for working in related employment is 44% lower than the college average of 54%. Many graduates are young and this may be a deterrent for employers and many students do not want to move where there are jobs (out west and up north). Students who do go where the jobs are get hired. Also, many jobs are seasonal such as subdivision, landscaping, snow-clearing, and highway work. While many work in these jobs all-year round; newer staff are often laid off during non-peak times.

There is no data for KPI 8 or 9 for the last five reporting years, nor is there any data for Conestoga College.

**STUDENT DEMAND**

The five year average for fall registrations is 48. The highest reporting year was 55 students in 2012, up from the previous year with 36 registered in the program. The overall growth for the program has been 9% over these past five reporting years.

The winter intakes tend to be smaller, with 38 registered in Winter 2013. Winter of 2014 has a larger enrolment of 48. The summer of 2013 there were 93 applications. Overall, the enrolment in this program has been strong and will likely continue to be strong with the number of employment opportunities.

**COMPETITOR ANALYSIS**

The program has had large numbers of applications since 2008, ranging from a low of 193 to a high of 248 applications. 2012 had the second largest number of applications of 231 with 55 registered in the fall 2012. The conversion ratio is 4.2. Conestoga’s program is also an Ontario College Certificate where students complete three different in-school apprenticeship training components in tractor loader backhoe, dozer and excavator. There is application data for the Conestoga program for the past five years, but no registration data. They had 174 applications in the Fall of 2012. The highest for the Fleming program registrations were in 2008 with 58 students attending the program.

Several private companies operate training courses as well; these are usually equipment and industry specific such as quarries or mining. Durham College offers a 4-week hands-on certificate program where students learn to operate tractor loader backhoe, crawler dozer, and a tracked excavator.

**FINANCIAL ANALYSIS**

This program does very well financially with its high tuition and high student demand. In 2012-13, this program contributed 44.8% to the college. Consistent high contribution to overhead results from its high numbers with three intakes per year and the high tuition cost of over $10,000.00 for the one-semester program.

**SUMMARY OF RECOMMENDATIONS**

Recommendations Building on Program Strengths:

1. Increase the use of D2L for quizzes across courses and simulator pre-assessment. This will increase the program’s alignment with the college’s e-learning strategy.
2. Continue to revise current assessments on the equipment to include formalized and culminating tasks using “real-world” applications such as pipeline excavating, trenching, basement excavating, levelling and other industry projects.
3. Review the revised program delivery model and make necessary adjustments and improvements.
4. A new program outcome regarding safety was designed and approved by the PAC. This is an initiative across several programs at the Frost campus.
5. Revise both operating courses for the June intake to better reflect the revised delivery model and incorporate curriculum changes.
6. The ideal intake for this program is 40 students for each of the three 12-week semesters. Once the numbers go over 40, equipment must be rented which is very costly. Ideally, once the 40 cap is reached, the remainder of the applicants should automatically be offered intake into the next semester. This would provide continuity in the program including staffing, equipment, and maintenance costs. This will be further explored with Admissions.

Recommendations Developed to Address Gaps Identified:

1. Review and revise the maintenance course so students appreciate its importance in the industry and their future employment. Guest speakers and field trips can underscore the need for operators to also be competent in maintaining their equipment.
2. Purchase a large structure so that students can operate in all weather conditions. Conditions with the last two intakes have reduced operating time for students including deep freezing of soil followed by mud and water. This large structure would allow students to operate regardless of weather conditions.
3. Incorporate required certifications for operations in various industries, in particular quarry, mining and pipeline construction, such as Surface Miner, Confined Space, and Sour Gas. This will be researched for feasibility in the program. Many employers see certifications as an added bonus for hiring and would assist graduates to gain employment in the industry. Currently, the program does cover some of the Surface Miner curriculum. This will be examined more closely to see if more components could be added as a part of the curriculum or if this could be offered through Continuing Education for those students who may wish to pursue this certification.
4. Provide additional training for instructors and professors in the Heavy Equipment programs such as lesson planning and assessment strategies.
5. Examine the current 50% pass in the operating and safety courses and increase to 70% as a passing grade. Other programs have a 70% for core courses such as safety and equipment operations. Currently, once some students have 50%, their attendance drops and they are missing important course content. Also, industry tests and certifications require 70% as a passing grade. Thus the program would mirror current industry standards.
6. Incorporate a strong statement in all outlines, that students must complete all assessments to pass the course. This would also assist in keeping attendance high and all students would be required to complete all tests, assignments, and operating modules.

**PROGRAM REVIEW PANEL**

**Meeting Date: May 8, 2014**

**Program Review Panel Participants**:

Dean: Mary Ann Fader (Acting Dean)

Chair:

Program Co-ordinator: Scott Heard

Curriculum Consultant: Terri Geerinck

Program Faculty/Support (maximum 4): Carmen Moore, Faculty Heavy Equipment Programs; Leonard Packer, Faculty, Heavy Equipment Operator.

External Members (minimum 3): Scott Whittaker (PAC member); Joe Outram, Coordinator, Arboriculture and Urban Forestry Certificate**. Regrets:** Karl Dings (PAC Member)

**APPENDICES**

SOURCE: FLEMING DATA RESEARCH – PROGRAM LEVEL REPORTS

<http://fleming0.flemingc.on.ca/SEM/FlemingDataResearch/ProgramReviewwelcome.html>

Attach the following three program level pieces of information here as appendices.

1. KPI – 5 YEAR HISTORICAL OVERVIEW
2. STUDENT DEMAND
3. COMPETITOR ANALYSIS









