

<b>Program</b>	Pre-Technology (168) and Pre-Trades/Pre-Technology-Aboriginal (101)
<b>Ministry of Training, Colleges, Universities Vocational Standard</b>	44702
<b>Credential</b>	Ontario College Certificate
<b>Dean</b>	Tony Thoma
<b>Associate Dean</b>	Bill Brimley
<b>Program Review Membership</b>	<b>Program Faculty:</b> Cindy Mehlenbacher, Program Co-Ordinator <b>Curriculum Design Specialist:</b> Lisa Pegg with support from Catharine Ozols <b>Institutional Research:</b> Carmelinda DelConte
<b>Program of Studies</b>	2011/12 (11-A)
<b>Final Analysis Session</b>	Fall 2011
<b>Date of Interim Status Report</b>	Fall 2014
<b>Date of Next Program Review</b>	Fall 2016
<b>Date Submitted to VPA Office</b>	<b>TBD</b>

This report represents the findings of Program Review for the Pre-Technology (168) and Pre-Technology/Pre-Trades Aboriginal (101) in the School of Engineering Technology. The review was performed during the period May 2008-October 2011.

This report has been prepared, reviewed, and accepted by all parties to the review, including program faculty, Curriculum Design, Institutional Research, Dean/Associate Dean in the school of Engineering Technology, and the Vice President Academic. The signatures of the representative parties demonstrate their acceptance of the content of this report and a commitment to prepare an interim status report in Fall 2014.

**For the Program (Dean or Associate Dean):**

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Signature

\_\_\_\_\_  
Date

**For the Vice President Academic:**

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Signature

\_\_\_\_\_  
Date

## Summary

The Pre-Technology (168) and Pre-Technology/Pre-Trades Aboriginal (101)\* Programs completed program review in Fall 2011.

Evidence from program review for the Pre-Technology programs indicates that:

- **Phase 1-Curriculum:** There are curriculum and delivery method enhancements required based on an analysis of the Curriculum Mapping Matrix, competitive curriculum data, and input from several focus groups of students registered in the programs.
- **Phase 2-Environmental Scan:** Action plans for quality improvements are required to address inconsistencies in student success and retention (course grades), specifically for Math courses. The College Math Project supports curriculum revisions and college pathways for Math competencies to support student success. The Pre-Technology programs were identified in the 08/09 Multi-Year Accountability Agreement as programs that required a comprehensive program review due to Overall Student Satisfaction Key Performance Indicator scores below 60%. The Pre-Technology/Pre-Trades Aboriginal program has consistently low enrollment. Intake for this program was suspended in Fall 2011.
- **Phase 3-Program Quality and Strategic Initiatives:** Deferred—to be incorporated into Program Review Program Quality Action Plan.

\*NOTE: An alternative review of all programs specific to aboriginal students is being conducted concurrently with this program.

**Overall Findings by Program Review Component (Program 168)**

Program Review Phase	Program Review Component	Met	Partially Met	Not Met	Evidence
Phase One Curriculum	Course Outlines		X		8/13 course outlines meet requirements outlined in Course Outline Policy (AC-512).
	Curriculum Mapping Matrix		X		Program meets some requirements outlined in Program Review Policy (AC-550) and Program Quality Policy (AC-570) in keeping with MTCU framework for programs of instruction.  Complete course outlines are required to analyze this program review component.
	Framework for Programs of Instruction		X		Program meets some requirements outlined in the Framework for Programs of Instruction.  Complete course outlines are required to analyze this program review component.
	Program Advisory Committee			X	Program does not have a dedicated Program Advisory Committee. (I am not sure where the college stands on dedicated Program Advisory Committees)
Phase Two Environmental Scan	Key Performance Indicators			X	Overall Student Satisfaction scores were below 50% for the 08/09 academic year. As a result, these programs were included in the 08/09 Multi-Year Accountability Agreement to complete a comprehensive program review.
	Program Performance Indicators	Not Applicable			Deferred to 5-Year Program Quality Action Plan (pending continuation of PPI data)
	Applicant/Enrolment	Not Applicable			Deferred to 5-Year Program Quality Action Plan
	Student Success and Retention		X		Course grades Student Engagement Survey
Phase Three Program Quality and Strategic Initiatives	Quality—Curriculum and Content	Not Applicable			Deferred to 5-Year Program Quality Action Plan
	Quality—Flexible Delivery				
	Quality—Flexible Operationally				
	Quality—Experiential Learning				
	Innovation—Applied Research				
	Innovation—Entre/Intrapreneurship				
Sustainability--Curriculum					

	Sustainability--Practices		
	PLAR		
	Learning Plans		
	eLearn		
	General Education		
	Student Feedback on Progress		

### Commendations

There are a number of areas that the Pre-Technology program demonstrates best practices and leadership in regard to program quality. They are:

- To Be completed in consultation with program faculty, administration

### Affirmations

Affirmations are declarations, which may/may not have evidence as a result of program review, that the program faculty identify are areas required to support program quality improvements. The areas identified include:

- To Be completed in consultation with program faculty, administration

### Recommendations

Analysis of various data sources from program review identified three areas that can assist in improving program quality for the Pre-Technology programs. They are:

1. Curriculum Renewal
  - Adopt Mohawk College specific Program Learning Outcomes that includes the following action items:
    - POS revisions to support student success strategies
    - POS revisions to meet the needs of students in regard to course options
    - Map courses to Program Learning Outcomes to address content gaps, overlaps and scaffolding required by MTCU Framework for Programs of Instruction
2. Annual Program Review Plan
  - Use available sources (Curriculum Mapping Matrix, Key Performance Indicators, Strategic Enrolment Planning data) to monitor program quality and student success as a result of curriculum renewal
  - Maintain a current Curriculum Mapping Matrix
3. Differentiated Learning and Graduate Pathways
  - Marketing and Communications
    - Prepare and market a visual representation of pathways to further study
    - Identify and use key factors that differentiate the Mohawk College Pre-Technology programs compared to competitors
    - Consider student feedback from focus groups in regard to the volume of communications received from the college

## 5 Year Program Quality Enhancement Action Plan

Following is a summary of the Pre-Technology Action Plan. A detailed action plan is available through the Office of the VPA requested from the Program Quality area. The detailed action plan that resides in the Office of the VPA is the action plan of record.

Objectives	Action Strategies	Timeline
<p>Objectives flow from program quality enhancement goals to define what we want to accomplish and help us focus on specific aims over a period of time. A simple acronym used to set objectives is called SMART:</p> <ol style="list-style-type: none"> <li><b>1. Specific</b> - Objectives should specify what they want to achieve.</li> <li><b>2. Measurable</b>- You should be able to measure whether you are meeting the objectives or not.</li> <li><b>3. Achievable</b> - Are the objectives you set, achievable and attainable?</li> <li><b>4. Realistic</b> - Can you realistically achieve the objectives with the resources you have?</li> <li><b>5. Time</b> – When do you want to achieve the set objectives?</li> </ol>	<p>Strategy exists only in relation to some goal, end or objective. Strategies describe <b>how</b> the objectives will be accomplished and outline a general plan of attack, an approach to a problem, the first step in linking the means or resources at our disposal with the ends or results we hold in view. Strategy does not detail, step-by-step, how the objectives will be accomplished.</p>	<p>Indicate approximate short-term; medium-term; long-term timelines</p>
<b>Short Term (within the next 18 months)</b>		
Develop and implement a Curriculum Renewal Plan	Utilize College Math Project and Competitive Curriculum Data to implement POS changes to support student success.	Fall 2011
	Prepare a management report for program modification for curriculum renewal in preparation for BoG approval.	Winter 2012
	Submit a revised POS based on above analysis	Dec 2011 for Fall 2012
	Strategically manage new course development, including updated mapping, using Mohawk College Program Learning Outcomes.	Winter/Spring 2012
	Develop a visual representation of graduate pathways Transitions In, Diploma, Transitions Out	Spring 2012
Develop an Annual Program Review framework	Utilize college staff and resources to develop strategies to monitor program quality on an annual basis (i.e. Course Lead Faculty; Institutional Research; Program Quality)	May/June 2012
<b>Medium Term (within the next 18-36 months)</b>		
Monitor short-term and long-term program quality enhancements and adjust as required	Utilize Annual Program Review process to monitor program quality enhancements.	To be determined pending outcome of short term objectives
	Consider a review of Learning Plans for specific courses to incorporate opportunities for experiential learning.	
	Consider “keep free” time on student timetables for supplemental learning opportunities (tutoring, peer directed review sessions, computer support etc.)	

	Submit interim program quality report to Program quality area.	
<b>Long Term (within next 36-60 months)</b>		
Plan and prepare for Comprehensive Program Review	Complete a Course Quality Review (provided by the program quality area)	Spring 2016

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## Phase 1 Analysis Summary Notes

NOTE: The Pre-Trades/Pre-Technology Aboriginal was suspended by the college due to low enrolment. As a result, curriculum analysis is not included in this section of program review. An alternative review of all programs specific to aboriginal students is being conducted concurrently with this program.

- **Participants:** part-time faculty; students from 3 sections of the Pre-Technology program
- The Curriculum Mapping Matrix (CMM) includes CLinking of Program Learning Outcomes to 8/13 courses from the program of studies (POS).
  - Analysis of the CMM was not completed due to incomplete course outlines in CORE.
  - Although CLinking to Essential Employability Skills has been captured and input into The CORE, the CMM does not clude Essential Employability Skills (EES); this capability will be included with the next CORE upgrade.
- The Pre-Technology program meets *some* aspects of the college policy and guidelines for course outlines (AC-512).
- Input from three focus groups with students provided the following information. Students:
  - are being advised to register in the full pre-technology program even if they only need a specific course such as Math or Chemistry to get into a diploma program
  - are assessed for Math competencies using the Business Math Assessment for Success. (TBC)
    - Upon successful completion of the certificate and acceptance into a diploma program, students are re-assessed for Math competencies using the Technology Math Assessment for Success.
  - receive copious amounts of correspondence from Mohawk College
    - Students are disappointed and showed concern that Mohawk College does not know who they are and are receiving several offers of admission for various diploma programs
  - would like to have course choice specific to career goals
    - Some courses in the POS are not relevant to the specific career goals of the students
      - NOTE: most of the students in the focus groups were mature students who had received career counselling and had identified specific career goals.
  - recommend a complete revision of the career education course to meet their specific needs
  - recommend more learning experiences that are hands-on and experiential.
    - NOTE: Program Learning Outcomes for this program identify experiential learning as an outcome. Curriculum review indicates very little experiential learning in the program (i.e. labs)
  - expressed concern in regard to the self-directed computer course
    - NOTE: analysis of course pass/fail for this particular course has confirmed some issues
  - Identified specific assessment issues which included an inordinate amount of time to complete an assignment that does not reflect in assessment breakdown; little feedback during the semester
  - Identified exam schedules as a barrier to student success
  - Were required to purchase expensive textbooks that were not used

## Curriculum Mapping Matrix Analysis

A comprehensive analysis Curriculum Mapping Matrix for the Pre-Technology program (168) is not possible due to the number of course outlines that are not compliant with the course outline policy.

### Breadth of Learning Summary

- Not Completed.

### Vocational Standards

- Not completed

### External Standards

- Not Applicable

### Overall Depth & Complexity Summary

#### VS- Overall Highlights

- Not Completed.

#### ES - Highlights

- Not Applicable.

### Program Composition

- Not Completed.

## Compliance: Framework for Programs of Instruction – Certificate (168)



Scope: Depth, Breadth and Complexity	<ul style="list-style-type: none"> <li>• Meets all specific program learning outcomes as defined by the MTCU program description</li> <li>• Perform in a range of varied activities involving known routines and some accountability for outcomes.</li> <li>• Applications are clearly defined and complexity is limited</li> <li>• Preparation for further post-secondary education</li> </ul>	X
Essential Employability Skills	<ul style="list-style-type: none"> <li>• Basic fundamental communication, personal management and teamwork skills</li> </ul>	X
General Education	<ul style="list-style-type: none"> <li>• Locally determined</li> <li>• Recommendation by MTCU to provide breadth of learning outside of vocationally specific courses</li> </ul>	√
Typical Duration	<ul style="list-style-type: none"> <li>• Approximately, two semesters or 600-700 equivalent instructional hours                             <ul style="list-style-type: none"> <li>○ 2011-2012 academic POS is 560 hours</li> </ul> </li> </ul>	√



Competitive Curriculum Analysis	Data as at Winter 2011
<ul style="list-style-type: none"> <li>• Most colleges with a Pre-Technology program provide students with course selection options based on chosen pathway and specific admissions requirements</li> <li>• Some colleges have developed unique admissions practices to meet the needs of differentiated learning pathways for students. They are: <ul style="list-style-type: none"> <li>○ Centennial College students are offered admission to the Pre-Technology program after a complete intake assessment. There are no direct applicants to this program.</li> <li>○ Conestoga College has two different pathways to the Pre-Technology program: <ul style="list-style-type: none"> <li>▪ One: direct applications via OCAS</li> <li>▪ Two: direct applications via OCAS to diploma program who do not meet required “assessment for success” math scores</li> </ul> </li> </ul> </li> </ul>	

Focus Group Observations & Recommendations	Data as at Fall 2010/Winter 2011
<p><b>PARTICIPANTS:</b> 3 focus groups with students from SEM1 (Fall 2010) and SEM2 (Winter 2011) provided the following qualitative data for the Pre-Technology program (168)</p>	

<p><b>SKILLS</b></p> <ul style="list-style-type: none"> <li>• Career planning skills</li> <li>• Communication skills</li> <li>• Computer skills</li> <li>• Measurement of time processing (Time management skills)</li> </ul>
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<p><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>• Good to have the Pre-tech program as a prerequisite (e.g. useful if forgotten Math and Chemistry from high school)</li> <li>• A good opportunity if you haven't been in school for a long time (e.g. came into the program for Math and Physics)</li> <li>• Having adult students with experience in the program</li> <li>• Broad range of curriculum</li> <li>• Academic assistance available</li> <li>• Gives the students an insight into the fields</li> <li>• Prepares people who are not used to school ease into the pressures of studying, time management, and identify strengths and weaknesses</li> <li>• Free public transportation</li> </ul>
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<p><b>CHALLENGES</b></p> <ul style="list-style-type: none"> <li>• No group activity except the Communication course</li> <li>• The program is too structured towards everything</li> <li>• The program is too broad, students do not know what is their career path</li> <li>• No practical labs for some classes (e.g. in the manufacturing class students just watch PPTs)</li> <li>• It's not enough transparency (e.g. only one person knew what are the prerequisites for Tech Program)</li> <li>• There are no practical labs (e.g. in manufacturing we just watch PPTs)</li> <li>• Hard to maintain motivation during the program</li> </ul>
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- Too much workload for some courses
- The textbooks are not necessarily for some courses
- Assignments in hard copy are a better option than the ones online (e.g. Math is about putting everything on paper)
- There're limitations due to age of students
- No rubric given, no marking scheme for some of the courses
- No concrete knowledge being taught about "learning strategies"
- Lack of hands on assignments
- 0 credit courses are not challenging
- Block style schedule (inflexible)
- Master assignments schedule (e.g. 3 exams in 24 hours)

**OPPORTUNITIES**

- Chemical Engineering and Nuclear Systems
- Restrictive certificate requirements (the students should have the opportunity to take the certificate even though they got exemptions)
- It has to be modular; there should be options
- The majority is taking courses that didn't wanted to do
- Field trips
- It has to have more features for independent teaching
- eBooks are very difficult to navigate through (e.g. Math)
- Guest speakers should be from people who work in the field, not just pick someone from the college (unless it's a recent graduate of a diploma program)
- A "computer literacy" class might be needed
- It feels as if it's a complete repeat from what students had taken in high school
- Access/Excel required programs not independent studies (due to that it is very difficult to learn without guidance)

**THREATS**

- The textbooks are very expensive (over \$120)
- Negative feedback from graduates
- The program is not recognized as an official program (other schools cannot connect the distinction between taking pre-tech as a preparing certificate program for full-time diploma programs - e.g. Sheridan College)

**STUDENT FEEDBACK: 3 THINGS LIKE ABOUT THE PROGRAM**

<b>Likes</b>
Classroom size
Teachers are here to help and are qualified (5 responses)
Broad range of curriculum; gives you some insight into the fields (6 responses)
The electricity course; lots of hands on; gives you a good idea of how circuits work (3 responses)
Manageable work load
Academic assistance available (especially for mature students) (3 responses)
Student input
Moderately easy
Math and Science updating (7 responses)
AutoCAD

Prepares people who are not used to school ease into the pressures of studying, time management, and identifying strengths and weaknesses (5 responses)
The flow of the program is ok. The first semester was a lot slower paced and the second a lot faster paced
I liked the variety of classes that are offered in the program but there should be more so we could take more classes that are relevant to the program we want to take after
1 <sup>st</sup> math course starts at a very appropriate level. Second math course is a good transition
The math content of physics and chemistry overlaps nicely with the actual math courses
Online web assign – math (2 responses)
Teachers post Power Point Online to help the learning and not depend on it
Entry level physics – teacher gives one week for take home work
Chemistry was good to get
Tutoring and math are great
The variety of courses wasn't bad
Skill level was a good start
Teaching computer programs like MS Office
Public transportation
Exemptions
Class times
Tech side of program
Easy subjects
Lots of time to do assignments

**STUDENT FEEDBACK: 3 OPPORTUNITIES FOR IMPROVEMENT FOR THE PROGRAM**

<b>Dislikes</b>
Second semester -> too much computer based classrooms compared to first semester: <ul style="list-style-type: none"> <li>• Mocomotion</li> <li>• AutoCAD</li> <li>• Microsoft</li> <li>• Programming</li> <li>• Web assign</li> <li>• E-learn</li> </ul>
Block style schedule
Odd direction of courses for a tech program ex. Business math instead of tech math
Electricity class has lab before
Few people know what financial benefits come with high marks in regarding to tuition
Using both e-learn and Mocomotion (should be one or other)
Like to change: <ul style="list-style-type: none"> <li>• Be able to drop courses not needed in your own future and still get certificate</li> <li>• Labs in Chem. and Phys.</li> <li>• Be able to drop off and put in courses that you need</li> </ul>
Need more hands on (9 responses) and group work
Need more choice in course selection (11 responses)
Some courses need to be more interesting such as engineering (manufacturing process) and careers. Some teachers didn't teach well enough as others making said courses more difficult to grasp, hindering your average.
Some teachers' teaching ability
More hands-on
Programming

Some variety in class choices, allowing for the student to become more familiar with the program to which they are taking in the next year (perhaps combine all of the pre-programs)
<p>Computer Course comments:</p> <ul style="list-style-type: none"> <li>• Make the Access/Excel requirement programs not independent studies it is very difficult to learn without guidance</li> <li>• I don't like the computer class – I felt like I didn't get any help and most of the programs are useless for me</li> <li>• Independent study for the Excel/ Access course – instruction would be more beneficial</li> <li>• Some teachers doesn't bother to teach you (Excel/Access)</li> <li>• Microsoft Office</li> </ul>
I didn't like the exam schedule last semester because we had the most important exams within 24 hours of each other; for example, we had manufacturing in the mornings then math at 7.00 pm till 9.00pm and then had chemistry at 8.00 am the next morning (4 responses)
<p>Drafting Course comments:</p> <ul style="list-style-type: none"> <li>• Manual drafting assignments require inordinate amount of time for the amount of marks they are worth (e.g. 6 hours of work for an assignment worth 2.5% of final mark)</li> <li>• The amount of work due for manual drafting (2 hours in class; average 8 hours out of class to finish)</li> <li>• Drafting teacher</li> </ul>
<p>Career Education Course comment:</p> <ul style="list-style-type: none"> <li>• this course requires a great deal of work for the benefit it provides. While it has some worthwhile content, much of it isn't applicable for a person whose path is set.</li> <li>• How you're expected to know how to write an essay for carrier education when you're learning it at the same time in English class.</li> <li>• Career pre-tech useless</li> </ul>
NO Mac based equivalent for computers
More common computer programs should be taught like PowerPoint
Manufacturing process
Time blocks (stop morning 8am classes to 4pm)
Hassle to get grades
More options for dropping courses
Long courses
Less learn work
No need for books
All online components
Not enough emphasis on attendance
Too varied, not specific to your future

## Phase 2 Analysis : Summary Analysis

NOTE: The Pre-Trades/Pre-Technology Aboriginal program (101) was suspended by the college due to low enrolment. As a result, a comprehensive Environmental Scan analysis is not included in this section of program review. An alternative review of all programs specific to aboriginal students is being conducted concurrently with this program.

### Student Success:

- Upon registration, students are assessed for Math competencies based on the Business Math Student Success Assessment and for Communications competencies.
  - The average Math competency score was 59% trended over 3 years (2009-2011).
  - On average, 70% of students were assessed above the communication competency benchmark trended over 4 years (2008-2011)
- Upon registration, students complete a Student Engagement Survey. This survey measures risk factors associated with academic success.
  - In Fall 2010, survey results indicated at least 3 risk factors had response rates by 50% or more of the students. Pre-Technology students presented with more risks to academic success compared to other foundations programs, with the exception of Pre-Justice and Business Foundations.
- Student retention from SEM1 to SEM2 for the 08/09 academic year was 71% and for the 09/10 academic year was 69%.
- Course Pass/Fail: Analysis of this data will be incorporated into the 5-Year Action Plan as a result of curriculum renewal requirements and actions based on student success analysis.
  - Historical data (08/09) for course pass/fail indicates that approximately 5 courses in the first semester have a 50%-60% pass rate.

### Applicant/Registrant/Catchment:

- Analysis of this data will be incorporated into the 5-Year Action Plan as a result of curriculum renewal requirements and actions based on student success analysis.

### Key Performance Indicators:

- Analysis of this data will be incorporated into the 5-Year Action Plan as a result of curriculum renewal requirements and actions based on student success analysis.

### Competitive Curriculum Analysis:

- Analysis of competitive curriculum analysis indicates that the Mohawk College Pre-Technology program, in comparison to other colleges with the same program, has similar admissions requirements and tuition.
- Almost all other colleges with the same program include course selection options for students in the POS.

**KPI Analysis**

Deferred to 5-Year Program Quality Action Plan

**Program Performance Indicators (PPI)**

Deferred to 5-Year Program Quality Action Plan

**Student Success and Retention: Course Grade**

See Phase 2 Summary

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**Phase 3 Analysis Summary Notes**  
Deferred to 5-Year Program Quality Action Plan

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