



RED RIVER COLLEGE
OF APPLIED ARTS, SCIENCE AND TECHNOLOGY

Greenspace Management Technology
Curriculum Validation – Program Renewal

Final Report

Fall 2007

Submitted to:
Robert Friesen, Chair
Civil Engineering Technology

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Representatives from the community:

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Jason Bell	City of Winnipeg
Tom Kowalchuk	Glendale Golf & Country Club
Jason Steadwell	Red Lake Golf Course
Cory Brownson	TLC Lawncare

The Advisory Committee:

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Greenspace Management Technology Curriculum Validation Final Report

Introduction

The Curriculum Validation – Program Renewal for the Greenspace Management Technology program was carried out between January/07 and June/07. The purpose of the Curriculum Validation – Program Renewal process was to assess the program and to develop a 5-year plan for program renewal.

The Curriculum Validation – Program Renewal process utilizes a structured format that identifies the current status of industry expectations, a description and vision for a desired future state, and a plan for creating it. The process normally requires the completion of a series of seven activities that result in the deliverables outlined below.

Curriculum Validation Deliverables:

The Greenspace Management Technology Curriculum Validation process involved 7 interrelated deliverables:

1. Environmental Scan and Analysis of the key findings of similar programs across Canada.
2. Industry Occupational Analysis (DACUM)
3. Graduate Skills and Abilities Chart
4. Graduate Profile
5. Program Renewal Vision and Goals
6. A 5-year Program Renewal Plan timelines
7. Final Report

Outcomes from the Deliverables:

1. Environmental Scan and Key Findings (Appendix A)

The Environmental Scan provides the faculty and chair with information about similar programs that are offered in Colleges and Universities locally and nationally. The Curriculum Validation Facilitator gathered information on similar programs and trends influencing their development and direction. The information was gathered through web sites, email and telephone contact. The scan gathered information under the following categories:

- Name of institution, location, contact person
- Size of program
- Credential offered
- Program features
- Curriculum Model
- Curriculum Content

- Student Assessment
- Current and Coming Challenges
- Curriculum Renewal
- Partnerships
- Additional Information (Other and comments)

Nine programs were scanned for the Greenspace Management Technology Curriculum Validation – Program Renewal. They included:

1. Kwantlen College	Langley, BC	Horticulture Technology Diploma - Turf Management
2. Olds College	Olds, AB	Turfgrass Management
3. Olds College	Olds, AB	Golf Course Management
4. The Northern Alberta Institute of Technology	Edmonton, AB	Golf Course Turfgrass Management Technology
5. Humber College	Toronto, ON	Landscape Technician Co-op Diploma
6. Ridgetown College	Ridgetown, ON	Horticulture Diploma
7. Niagara College	Niagara-on-the-Lake, ON	Horticultural Technician
8. Fanshawe College	London, ON	Horticulture Technician
9. Nova Scotia Agricultural College	Truro, NS	Environmental Horticulture Technology

Key findings from the Environmental Scan

Enrolment:

- Program size ranges from 1st year intakes of 22 at RRC to 100 at Niagara.

Entrance Requirements:

- All diploma programs require a High School Diploma (emphasis on English, Math. and Science) to be admitted. In addition the Olds B.App.Sc. program requires a horticulture diploma or degree in a closely related area and industry experience. Humber requires proficiency in word processing and spreadsheet applications and a tetanus vaccination. RRC may use interviews with applicant to understand a prospective applicant's suitability. Kwantlen offers courses in Math and Chemistry for applicants who require upgrading in preparation for the program.

Structure:

- 8 of the programs are 2-year Diploma programs, one (RRC) is a 3-year Diploma program and one (Olds) is a 2-year B.App.Sc. program.
- All programs are full-time day programs. Ridgetown offers 12 equivalency courses online and Niagara offers English and Math online and a number of courses in the evening through their Continuing Education department.

- Olds offers Diploma programs in Commercial Floristry, Ornamental Horticulture, Production Horticulture, Turfgrass Management and the Landscape Gardener Apprenticeship program.
- Niagara has a common 1st year for the Landscape, Horticultural and Greenhouse Technician diploma programs. Students can leave after the first year with a Landscape Horticulture Techniques certificate.
- The Olds B.App.Sc. program offers majors in Golf Course Management, Landscape Management, or Production Horticulture.

Experiential Component:

- 4 programs are Co-op programs, 4 programs offer a Work Experience component and the Olds B.App.Sc. program offers a Directed Field Study in the 2nd year of the program.
- Co-op is offered over 2 terms for all Co-op programs except Humber where it is offered in 1 term only. Work Experience is offered in spring/summer term by the 4 programs having this component.

Partnerships:

- RRC and NAIT have articulation agreements with Olds College.
- Humber, Olds, NAIT, Nova Scotia and Kwantlen have one or more articulation agreements with Canadian universities.
- NAIT has an agreement with the Alberta Apprenticeship and Industry Training. Graduates from their programs are granted advanced standing for the academic requirements for the Outdoor Power Equipment Technician Apprenticeship program.

Challenges:

- Like RRC, Olds and NAIT expressed concerns with declining enrolments. The abundance of good jobs that don't require post-secondary education in a booming western provinces' economy and non-competitive wages for entry-level greenspace positions were identified as the major influencers on declining enrolments.
- Ridgetown and Niagara compete with other southern Ontario colleges for students.

2. Industry Occupational Analysis (DACUM) Chart (Appendix B)

An Industry Occupational Analysis using the DACUM process is a familiar component of the curriculum development process at Red River College and provides the program with a description of skills required for an entry-level position in the greenspace management industry. Included in the process is the identification of emerging and retiring industry trends.

The DACUM occupational analysis took place over two full days (February 26 and 28, 2007) and was facilitated by Michael Stuhldreier and Gene Semchych from the Program and Curriculum Development department. A total of 9 representatives from a number of large and small employers in the greenspace industry participated in this workshop.

Participants were asked to identify the major competencies required by entry-level greenspace management workers. At the end of the two days, the resulting DACUM occupational analysis chart identified 15 general areas of competencies broken - down into 191 skills and abilities.

The Greenspace Management Technology DACUM identified the following emerging and retiring trends:

Emerging Industry Trends:

- work-life balance
 - ~ employer/employee relations (work flexibility, benefits, etc.)
- specialization within industry
- staff retention issues (change over, staff seeking other opportunities)
- increased requests for qualifications, but qualifications not financially rewarded
- environmental management
 - ~ nutrient management
 - ~ water quality and quantity management
- integrated pest management (IPM) practices
- environmental sustainability issues
- aging plant species
- changing soil conditions
- better tree practices
- quality management and due diligence
- record keeping
- keeping up with new products
- efficient machine operation

Retiring industry trends:

- blanket preventative pesticide application
- working sun-up to sun-down
- older staff retiring
- water wastage
- old practices in pruning and caring for trees

The following are additional emerging trends that were identified by Greenspace Management Technology faculty at the Faculty Skills and Abilities Workshop:

- Greenspace management is becoming a 2nd career choice for those leaving/retiring from other occupations
- increase in the level of administration/management skills required
- increase in the role of computers and other technologies

3. Graduate Skills and Abilities Chart (Appendix C)

The Graduate Skills and Abilities workshop was conducted with the faculty to identify the skills and abilities required of graduates from the Greenspace Management Technology program. This workshop was held on April 24, 2007.

The outcome of this workshop was a single, composite chart that outlines the graduate skills and abilities. The chart is the cross-referencing of: 1) the competencies identified in the Industry Occupational Analysis (DACUM) Chart and the College Wide Learning Outcomes (CWLOs), and 2) the faculty's assessment of what would constitute realistic learning expectations of the program. This chart serves as the focus for curriculum renewal and the basis for the development of program learning outcomes.

4. Graduate Profile (Appendix D)

The Graduate Profile was developed by the Curriculum Consultant from the Graduate Skills and Abilities chart and then vetted by the faculty before being finalized. The Graduate Profile is an outline that is used for the development of curriculum and it serves to guide the assessment of student learning.

5. Program Renewal Vision and Goals

The Program Renewal Vision and Goals are based on the results of a half-day workshop which was held on May 31, 2007 with the faculty and the Chair. Utilizing the results of this workshop, the Curriculum Consultant in collaboration with the Curriculum Validation Facilitator and the Chair created a vision statement along with goals and objectives that will guide the program renewal activities over the next five years. This vision and the goals are as follows:

The Greenspace Management Technology program will be recognized as a leader in the provision of training that produces graduates that are prepared for a variety of careers in greenspace management.

The following goals were identified to realize this vision:

Curriculum

- Deliver an up-to-date diploma program that will meet the training needs of persons preparing for a variety of entry-level positions in greenspace management.

Partnerships

- Strengthen partnerships with industry, government bodies, and other institutions.

Faculty development

- Increase opportunities for faculty to grow professionally.

Program development

- Determine the viability of offering an Applied Degree option (Note: This goal is conditional on COPSE approval for the College to award Applied Degrees and the program's meeting the College's criteria for the selection of programs that offer an Applied Degree).

Student retention

- Increase student retention.

Infrastructure

- Provide the appropriate space for the delivery of the program.

Marketing

- Expand program promotion/student recruitment strategies.

6. Program Renewal Plan

The program renewal plan is the result of translating the preceding five deliverables into a coherent plan for the renewal of the program. The Program Renewal Plan will serve as the basis for the improvement of the Greenspace Management Technology (GSM) program. The Chair and faculty are committed to renewing the program over the next 5-year period.

The following tasks (and timelines) were identified for completion by the end of June 2012.

- Establish a Curriculum Committee to guide the curriculum renewal process
 - . Ensure that existing course content, hours and sequencing are appropriate to needs of learners (Oct.1/07 – May 5/08).
 - . Determine the need for additional and optional courses to meet the requirements of industry as identified in the DACUM occupational analysis (May 5/08 – May 5/09).
 - . Determine the need to provide a variety of course delivery options (e.g. online) (May 5/08 – Nov.13/09).
- Partner with other institutions
 - . Explore joint-program opportunities (Jan.21/08 – April 30/10).
 - . Explore the development of articulation agreements with high-schools to increase enrolment opportunities for sequential students (Jan.19/09 – April 30/10).
 - . Expand recognition of courses offered by other institutions for credit transfer into GSM (Dec.14/08 – Sept.01/09).
 - . Expand recognition of courses offered by GSM for credit transfer into other programs (Jan.19/09 – April 30/10).
- Partner with industry
 - . Explore with industry the development of special projects or research opportunities for students to address "real-world" work issues as part of the Co-op Practicum projects (Nov.15/07 – June 30/08).
- Partner with government
 - . Work with Manitoba Agriculture to become a deliverer of the Pesticide Certification program (Oct. 1/07 – March 31/09).
 - . Work with the Apprenticeship Branch to articulate the GSM program with the Landscape Technician Apprenticeship program (March 3/08 – Dec.19/08).
- Increase opportunities for faculty

- . Explore using other department faculty, contract instructors and industry personnel to increase the diversity of instruction in the program (Oct.1/07 – May 28/08).
 - . Provide faculty with sufficient PD opportunities to maintain high teaching standards and to remain current with the latest technology and requirements of industry (Feb.25/08 – Dec.19/08).
 - . Explore with Applied Research and Commercialization and industry the opportunities available for faculty to participate in research in program related areas (Feb.2/09 – Feb.22/10).
- Determine the viability of offering an Applied Degree option (Note: This goal is conditional on COPSE approval for the College to award Applied Degrees and the program's meeting the College's criteria for the selection of programs that offer an Applied Degree)
 - . Determine industry demand and support for an Applied Degree in GSM (TBD)
 - . Determine student demand for an Applied Degree in GSM (TBD)
 - . Identify resource requirements to offer an Applied Degree option (TBD)
 - . Report to Advisory Committee and SAC on findings and recommendation (TBD)
- Develop strategies to increase student retention
 - . Explore adopting the student retention practices used by other Civil Engineering Technology programs (Jan.2/08 – April 30/08).
- Work with Enrolment Services to identify ways that the program can actively participate in the student acceptance process (Oct.1/07 – Nov.28/07).
- Develop an infrastructure strategy to meet program needs (Sept.2/09 – April 27/12).
- Arrange with industry and/or other institutions to use their available facilities/equipment in the delivery of the program (Oct. 1/07 – May 27/11).
- Develop program promotion/student recruitment strategies
 - . Review the program entrance requirements to identify possible changes that could increase the number of eligible applicants (Oct. 1/07 – Nov.28/07).
 - . Continue to promote the program through CNLA and CGSA (Oct.1/07 – Jan.14/11).
 - . Work with the College's Recruitment Officer to actively promote the program to prospective students (Oct.1/07 – Aug.22/12).
 - . Explore delivering hobbyist courses to the community as a means of increasing interest in GSM as a career (Mar.3/08 – Aug.29/08).
- Consolidate the program's web sites (Oct.1/07 – Jan.11/08).

The Curriculum Validation – Program Renewal process has provided a benchmark against which the renewal of the Greenspace Management Technology program can be tracked and measured. The Program Renewal goals that were identified will ensure that the program is recognized as a leader in the provision of training that prepares graduates for a variety of employment opportunities in the greenspace management industry. The Program Renewal plan will serve to guide the Chair with the assignment of resources to accomplish the renewal goals within a 5-year timeframe.

Appendix A - Environmental Scan and Key Findings

Environmental Scan

	RRC	HUMBER	OLDS	OLDS	NAIT
College	Red River College of Applied Arts Science and Technology 2055 Notre Dame Ave., Winnipeg, MB R3H 0J9	Humber College (North Campus) 205 Humber College Blvd. Toronto, ON M9W 5L7	Olds College 4500 - 50th Street Olds, AB T4H 1R6 Telephone:1-800-661-6537 or (403) 507-7715	Olds College 4500 - 50th Street Olds, AB T4H 1R6 Telephone:1-800-661-6537 or (403) 507-7715	The Northern Alberta Institute of Technology 11762 - 106 St, Edmonton, ALTA, T5G 2R1 (780) 471-7400
Program Name	Greenspace Management	Landscape Technician Co-op Diploma	Turfgrass Management	Golf Course Management	Golf Course Management Technology
Credential	Diploma	Diploma	Diploma	Bachelor of Applied Science	Diploma
Size of Program Students: Faculty:	<ul style="list-style-type: none"> • 22 • 4+3 shared 		<ul style="list-style-type: none"> •30 •17 		<ul style="list-style-type: none"> •28
Program Features	<ul style="list-style-type: none"> • Length: 30 months Term 1 <ul style="list-style-type: none"> • Sept→Jan (20 weeks academic) Term 2 <ul style="list-style-type: none"> • Feb→Apr (12 weeks academic) Term 3 <ul style="list-style-type: none"> • May→Oct (28 weeks Co-op work experience) Term 4 <ul style="list-style-type: none"> • Oct→Jan (12 weeks academic) Term 5 <ul style="list-style-type: none"> • Feb→Apr (12 weeks academic) Term 6 <ul style="list-style-type: none"> • May→Oct (28 weeks Co-op work experience) 	<ul style="list-style-type: none"> • Length: 2 years 	<ul style="list-style-type: none"> • Length: 2 years First Year <ul style="list-style-type: none"> • Sept→Apr (academic) Work Experience <ul style="list-style-type: none"> • Apr→Aug Second Year <ul style="list-style-type: none"> • Sept→March (academic) 	<ul style="list-style-type: none"> • Length: 2 years (1 year academic + 1 year Directed Field Study) Third Year, <ul style="list-style-type: none"> • Sept→Mar (academic) Directed Field Study, <ul style="list-style-type: none"> • Apr→Nov (8 months) 	<ul style="list-style-type: none"> • Length: 2 years Fall semester <ul style="list-style-type: none"> • Sept→Dec Winter semester <ul style="list-style-type: none"> • Jan→mid April Work Experience <ul style="list-style-type: none"> • April→Aug (16 weeks between 1st and 2nd year of program) <ul style="list-style-type: none"> ○ First four weeks of first semester (work placement/self directed research evaluated based on pre-determined requirements and

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
Ridgetown College 120 Main St E Ridgetown, ON NOP 2C0	Niagara College NOTL Campus 135 Taylor Road, Niagara-on-the-Lake, ON L0S 1J0	Nova Scotia Agricultural College PO Box 550 Truro, NS B2N 5E3	Fanshawe College (London Campus) 1460 Oxford Street. East P.O. Box 7005 London, ON, N5Y 5R6	Kwantlen University College 20901 Langley Bypass Langley, BC
Horticulture Diploma	Horticultural Technician	Environmental Horticulture Technology	Horticulture Technician	Horticulture Technology Diploma Turf Management
Diploma	Diploma	Diploma	Diploma	• Diploma
<ul style="list-style-type: none"> • 40 • 4 + 6 shared 	<ul style="list-style-type: none"> • 100 • 4 + approx 20 p/t 		<ul style="list-style-type: none"> • 34 • 2 	
<ul style="list-style-type: none"> • Length: 2 year (4 semester) program <ul style="list-style-type: none"> • Each semester is 12 weeks academic + 1 week exams • Semesters 1 & 3, • Sept.→Dec. • Semesters 2 & 4, • Jan.→Apr. • Work Experience takes place Apr.→Aug. but is not formally recognized as a program requirement. 	<ul style="list-style-type: none"> • Length: 2 years • Fall Term • Sept→Dec • Winter Term • Jan→Apr • Co-op work term • Apr→Aug (min. 540 hrs.) • Optional 1st year • Jan→Apr, • May→July, Co-op term is fulfilled after second year academic terms are complete. 	<ul style="list-style-type: none"> • Length: 2 years • Fall Term, • Sept→Dec • Winter Term, • Jan→Apr • No formal Co-op term 	<ul style="list-style-type: none"> • Length: 2 Years • Each semester is 14 weeks academic + 1 week exams • Levels 1 & 3 • Sept.→Dec. • Levels 2 & 4 • Jan.→Apr. • 2 Co-op work terms • May→Aug. 	<ul style="list-style-type: none"> • Length: 2 Years (20 months) • Semesters 1 & 3 • Sept.→Dec. ? • Semesters 2 & 4, • Jan.→Apr. ? • Horticulture work experience (1 term), • May→Aug. ?

	RRC	HUMBER	OLDS	OLDS	NAIT
	Term 7 • Oct→Jan (12 weeks academic)				an oral evaluation)
Entrance Requirements:	<ul style="list-style-type: none"> • Manitoba Senior 4 including one credit of Biology 40S/40G, Chemistry 40S, Physics 40S or Physical Science 40G • Applicant must have successfully completed a minimum of one English 40S credit, one Math 40S credit and one credit of Biology 40S/40G, Chemistry 40S, Physics 40S or Physical Science 40G. • Note: Biology 40S and Technical Communication 40S are recommended. 	<ul style="list-style-type: none"> • Ontario Secondary School Diploma (OSSD) with courses from College (C), University/ College (M), University (U) pathways, or OSSD at or above the general level, or equivalent, or mature student status; ENG4C or ENG4U, or Grade 12 English at or above the general level. • Applicants who have not successfully completed Grade 11 Functions (MCF3M) or Grade 11 Functions and Relations (MCR3U), will be required to write a math assessment. • Proficiency with word processing and spreadsheet applications is required. Students who lack the requisite computer skills will be required to take a computer 	<ul style="list-style-type: none"> • Alberta High School Diploma or its equivalent with 55% or better in English Language Arts 30-1 or 30-2 (English 30 or 33), 55% or better in Pure Math 20 or Applied Math 20 (Math 20 or 23), 55% or better in Biology 20 and Chemistry 20 	<ul style="list-style-type: none"> • A horticulture diploma or a degree in a closely related area. • A minimum of 4 months work experience working with turf. 	<ul style="list-style-type: none"> • A Canadian High School Diploma with 50% or better in grade 11 English, Science and Math. Include official transcripts of secondary and post-secondary education with your application.

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • OSSD or equivalent with minimum 60% average; senior level Math, Biology & Chemistry recommended or Mature Student status. 	<ul style="list-style-type: none"> • Ontario Secondary School Diploma with the majority of senior level courses at the College (C), University (U) or University/College (M) levels, or an Ontario High School Equivalency Certificate (GED), or mature student status. • Grade 12 English (C), (U) or (O), or Grade 12 English (minimum General Level). • Recommended Courses and/or Recommended Skills (Not Required for Admission): Chemistry—Grade 11 (U) or Grade 12 (C) or (U); Biology—Grade 11 (C) or (U) or Grade 12 (U); Mathematics—any Grade 12 (C) or (U). 	<ul style="list-style-type: none"> • High school graduation with an average of at least 60% in five university preparatory subjects including: Grade 12 English; Grade 12 Mathematics; Grade 12 Biology; one Grade 12 elective and Grade 11 Chemistry. 	<ul style="list-style-type: none"> • OSSD with courses from the College (C), University (U), University/College (U/C), or Open (O) stream • Any Grade 12 English (C) or (U) Any Grade 11 or Grade 12 Mathematics* (C), (U), or (U/C) or Academic and Career Entrance Certificate (ACE) or Ontario High School Equivalency Certificate (GED) and any Grade 11 or Grade 12 Mathematics* (C), (U), or (U/C) or Mature Applicant with standing in the required courses stated above. 	<ul style="list-style-type: none"> • English 12 with a C+ or equivalent (if a candidate does not meet the recommended letter grade required, they are encouraged to write the Kwantlen English Placement Test) • Math 11 (Applications or Principles) with a C or equivalent • Chemistry 11 or equivalent with a C grade or Physics 11 or equivalent with a C grade or Biology 11 or equivalent with a B grade • Kwantlen offers non-credit courses in math and chemistry for students who require upgrading in preparation for the program

	RRC	HUMBER	OLDS	OLDS	NAIT
Entrance Requirements: cont'd		<p>course at their own expense. Students must have acquired these computer skills before the beginning of second semester.</p> <ul style="list-style-type: none"> • All students entering this program must have received a tetanus injection or booster shot within the last ten years. 			
Special Admission Requirements	<ul style="list-style-type: none"> ▪ Applicants who will be 19 years of age on or before September 30 in their year of registration, and who have been out of high school for a minimum of one year who do not meet the regular admission requirements may apply under the special admission requirements. Individuals applying as a special admission applicant must have successfully completed one credit of English 40S, one credit of Math 40S, and one credit of Chemistry 40S, Physics 40S, 				<ul style="list-style-type: none"> • Adult Status is available if the applicant has been out of school for at least one year. If seeking Adult Status, a letter is required outlining education, experience, and reasons for seeking admission to the program and an up-to-date personal resume with two letters of reference, preferably turfgrass related. • Students are admitted to the program on a first qualified, first admitted basis.

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • A Mature Student is any applicant who does not possess a high school diploma or equivalent but is 19 years of age or older and has been out of high school for a minimum of one year. 		<ul style="list-style-type: none"> • Students who are at least 23 years of age and who have been out of high school at least 5 years may be considered for admission on a mature student basis. Such applicants are considered individually. A resume outlining past academic achievements and employment background is required. Mature students who complete one full semester in good standing assume normal student status. 		<ul style="list-style-type: none"> • An applicant who does not meet the basic admission criteria may appeal for admission as a Special Admission student and complete up to 12 credits before they must meet the regular admission requirements.

	RRC	HUMBER	OLDS	OLDS	NAIT
Special Admission Requirements cont'd	Biology 40S/40G, or Physical Science 40G.				
Special Selection Criteria	<ul style="list-style-type: none"> ▪ Interviews may be utilized to help understand a prospective student's suitability. 		<ul style="list-style-type: none"> • Applicants may be required to meet specific course & program requirements. Acceptance will be based on approval the Program Coordinator and the Registrar's Office. 		
PLAR	<ul style="list-style-type: none"> • Yes 		<ul style="list-style-type: none"> • Yes 	<ul style="list-style-type: none"> • Yes 	<ul style="list-style-type: none"> • Yes
Graduation Requirements	<ul style="list-style-type: none"> • Students must maintain a minimum cumulative grade point throughout the program of 2.0, with no failing grades or outstanding fees. 		<ul style="list-style-type: none"> • Student must achieve 120 credits, a GPA of 2.00 or better, completion of all required courses as listed in the program requirements, 640 hrs of on-the-job work experience. 		<ul style="list-style-type: none"> • Students must complete all required courses with a GPA of no less than 2.00 with no "F" grades. Students must also satisfactorily complete the work experience component.

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • No ○ Challenge exams are available for a number of courses ○ Will accept course credits for similar courses from students transferring from other horticulture diploma programs 	<ul style="list-style-type: none"> • Yes 	<ul style="list-style-type: none"> • No 		
			<ul style="list-style-type: none"> • Students must complete a minimum of 19 of the program credits at Fanshawe to meet the Residency Requirement. 	<ul style="list-style-type: none"> • Courses may be taken out of the order listed, but specific course prerequisites apply.

	RRC	HUMBER	OLDS	OLDS	NAIT
Experiential Learning Component	<ul style="list-style-type: none"> • Co-op work term <ul style="list-style-type: none"> ○ 2 terms 	<ul style="list-style-type: none"> • Co-op work term <ul style="list-style-type: none"> ○ 1 term 	<ul style="list-style-type: none"> • Work experience <ul style="list-style-type: none"> ○ 16 weeks 	<ul style="list-style-type: none"> • Directed field study <ul style="list-style-type: none"> ○ 1 year 	<ul style="list-style-type: none"> • Directed Field Study <ul style="list-style-type: none"> ○ 4 weeks • Work experience <ul style="list-style-type: none"> ○ 16 weeks
Program Streams	<ul style="list-style-type: none"> • No 		<ul style="list-style-type: none"> • Yes <ul style="list-style-type: none"> ○ Diploma courses include Commercial Floristry, Ornamental Horticulture, Production Horticulture, and Landscape Gardner Apprenticeship Program 	<ul style="list-style-type: none"> • Yes <ul style="list-style-type: none"> ○ Landscape Management Major and Production Major ○ Specific optional courses are offered within the curriculum as noted the Curriculum Content section 	<ul style="list-style-type: none"> • No

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • Work experience <ul style="list-style-type: none"> ○ not formally recognized as part of the program requirements 	<ul style="list-style-type: none"> • Co-op work term <ul style="list-style-type: none"> ○ 2 terms 		<ul style="list-style-type: none"> • Co-op work term <ul style="list-style-type: none"> ○ 2 terms 	<ul style="list-style-type: none"> • Work experience <ul style="list-style-type: none"> ○ 1 terms
	<ul style="list-style-type: none"> • Yes <ul style="list-style-type: none"> ○ Program has common first year for the Greenhouse, Horticulture, Landscape and relatively new Landscape Technician programs. ○ Second Year courses differentiate to allow students to pursue the career path they feel most comfortable in. ○ Techniques Certificate, offered to students who successfully complete first year courses but are unable to continue in second year. 	<ul style="list-style-type: none"> • Yes <ul style="list-style-type: none"> ○ Soil Science ○ Analytical Chemistry ○ Waste Management ○ Environmental Economics ○ Pest Management ○ Environmental Biology ○ Open (Combination of above) 		

	RRC	HUMBER	OLDS	OLDS	NAIT
Options for taking program	<ul style="list-style-type: none"> • Full-time <ul style="list-style-type: none"> ○ in-person 	<ul style="list-style-type: none"> • Full-time 	<ul style="list-style-type: none"> • Full-time <ul style="list-style-type: none"> ○ in-person 	<ul style="list-style-type: none"> • Full-time <ul style="list-style-type: none"> ○ in-person 	<ul style="list-style-type: none"> • Full-time <ul style="list-style-type: none"> ○ in-person
Intake	<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September
Courses	<p>Term 1 (academic 20 weeks)</p> <ul style="list-style-type: none"> • Botany 80 hrs • Written Communications 30 hrs • Irrigation & Drainage Components 60 hrs • Mathematics for Greenspace Appl 80 hrs • Grounds Machinery-1 80 hrs • Microcomputer Productivity Software 60 hrs • Introduction to Soils 60 hrs • Surveying 80 hrs • Weed Identification-1 • WHIMIS Workshop 4 hrs • General Safety Training 8 hrs • Introduction to Turfgrass 	<p>Semester 1 (27 hours/week)</p> <ul style="list-style-type: none"> • Career Management-1 • Horticulture & Arboriculture Practices • Basic Surveying • Construction Practices • Ornamental Plant Materials • Botany & Soils • Turf Installation & Maintenance • Landscape Drafting & CAD • Pests, Diseases & Plant Protection • Technical Communications-1 <p>Semester 2 (18 hours/ week)</p> <ul style="list-style-type: none"> • Materials & Techniques • Pesticide Licensing • Ornamental Plant Materials-2 	<p>First Year - Fall Semester (note: 3 credit hours = approx. 35 instructional hours)</p> <ul style="list-style-type: none"> • Oral Communications 3 hrs • Information Processing-1 3 hrs • Plant Materials-1 6 hr • Pruning Practices 2 hrs • Applied Botany 3 hrs • Plant Physiology 3 hrs • Soil Investigations 3 hrs • Horticulture Surveying 4 hrs • Turf Management-1 5 hrs <p>First Year- Winter Semester</p>	<p>Third Year (Fall Semester)</p> <ul style="list-style-type: none"> • Accounting & Financial Management • Introduction to Horticultural Scientific Methods • Advanced Plant Nutrition • Integrated Project (fall & winter) • Portfolio Development (fall & winter) • Environmental Management for Golf Courses <p>Third Year (Winter Semester)</p> <ul style="list-style-type: none"> • Integrated Pest Management • Integrated Project (fall & winter) • Human Resource Management 	<p>Semester 1</p> <ul style="list-style-type: none"> • Turfgrass Science-I 55 hrs • Turfgrass Botany/Physiology 55 hrs • Turfgrass Soils 55 hrs • Golf Course Equipment-II 22 hrs • Professional Skills-I 12 hrs • Professional Skills-II 55 hrs • Applied Turfgrass Mathematics 33 hrs • Golf Course Field Trip 25 hrs • Golf Course Surveying & Drainage 55 hrs • Golf Course Set-up 28 hrs • Golf Course Equipment-I 60 hrs <p>Semester 2</p> <ul style="list-style-type: none"> • Turfgrass Culture 70 hrs

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • Full-time • Approximately 12 equivalency courses (e.g. Dynascape) are available on-line, as well as through the summer months 	<ul style="list-style-type: none"> • Most of the courses are delivered full-time days, but English is available on-line with Math soon to follow. • A number of courses are taught in evening classes through their Continuing Education Dept. 	<ul style="list-style-type: none"> • Full-time program (similar to a university) 	<ul style="list-style-type: none"> • Full-time 	<ul style="list-style-type: none"> • Full-time
<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September and January 	<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September 	<ul style="list-style-type: none"> • September
<p>Semester 1 – Fall (courses are delivered on a 60 hr format, 5 hr/wk X 12 wks)</p> <ul style="list-style-type: none"> • Applied Plant Science • Soil Principles • Applied Mathematics • Computer Applications Part I • Communications Skills Part I • Landscape Management • Plant Identification I <p>Semester 2 – Winter</p> <ul style="list-style-type: none"> • Business Accounting • Computer Applications Part II • Communications Skills II • Plant Propagation • Landscape Design I <p>Elective Courses: (select 2)</p>	<p>Term 1</p> <ul style="list-style-type: none"> • Career Planning & Development 1 hr/wk • Language & Communications 3 hr/wk • Deciduous Trees & Shrubs 3 hr/wk • Horticulture Practices-I 3 hr/wk • Landscape Graphics & Design 3 hr/wk • Nursery Management 2 hr/wk • Plant Science-I 3 hr/wk • Mathematics for Horticulture 3 hr/wk <p>Term 2</p> <ul style="list-style-type: none"> • Evergreen Ornamentals 3 hr/wk • Horticulture Entomology 3 hr/wk • Horticulture Practices-II 3 hr/wk 	<p>Year 1 Semester I</p> <ul style="list-style-type: none"> • Writing for Business • Landscape Plants-I • Turfgrass Production and Management • Landscape Horticulture I • Principles of Soil Science <p>Year 1 Semester II</p> <ul style="list-style-type: none"> • Plant Physiology and Stress Management • Weed Science • Horticultural Engineering • Landscape Plants II • Soil Management <p>Year 2 Semester III</p> <ul style="list-style-type: none"> • Entomology • Surveying • Landscape Plants III • Arboriculture • Landscape Horticulture-II 	<p>Level 1 (15 weeks)</p> <ul style="list-style-type: none"> • Professional Communication 3 Cr • Computers-Intro 2 Cr • Garden Design & Plan Interpretation 6 Cr • Horticulture -1 2 Cr • Soils for Horticulture 2 Cr • Math for Horticulture Technician 1 Cr • Woody Deciduous Plant Identification 2 Cr • Arboriculture-1 2 Cr <p>Level 2 (15 weeks)</p> <ul style="list-style-type: none"> • Dynascape for Garden Design 3 Cr • Landscape Materials 2 Cr • Horticulture Pest Control & 	<p>Year 1 Fall – Semester 1</p> <ul style="list-style-type: none"> • Introductory Microcomputer Applications 3 Cr • Botany for Horticulture 3 Cr • Introductory Equipment Maintenance 2 Cr • Turf Maintenance Operations 2 Cr • Intro to Plant Identification 3 Cr • Turf Management-I 3 Cr <p>Year 1 Spring – Semester 2</p> <ul style="list-style-type: none"> • Business & Technical Communication: Theory & Application 3Cr • Pesticide Applicator/Dispenser Certification .5 Cr

	RRC	HUMBER	OLDS	OLDS	NAIT
Courses cont'd	<p>60 hrs</p> <p>Term 2 (academic 12 weeks)</p> <ul style="list-style-type: none"> • Introductory Drafting 36 hrs • Herbaceous Plant Materials 36 hrs • Oral Communications 36 hrs • Plant Pathology & Entomology 24 hrs • Plant Physiology 36 hrs • Turfgrass Management 36 hrs • I.P.M. Techniques for Greenspace 48 hrs • Pesticide Applicator Provincial Exam 0 hrs • Soil Fertility 48 hrs • Value, Ethics & Issues in Technology & Society 10 hrs • Weed Control Strategies 24 hrs • Woody Plant Materials 48 hrs <p>Term 3 (field work 26 weeks)</p> <ul style="list-style-type: none"> • Co-op Work Experience 800 hrs. minimum <p>Term 4 (academic 12 weeks)</p>	<ul style="list-style-type: none"> • Basics of Irrigation • Landscape Field Instruction-1 • Equipment Maintenance • Standard First Aid-HeartSaver CPR • Technical Communications-2 • Co-op Work Term (May→August min. 400 hrs) <p>Semester 3 (24 hrs./week)</p> <ul style="list-style-type: none"> • Principles of Arboriculture-1 • Ornamental Plant Materials-3 • Site Layout & Construction Detailing-1 • Plant Production and Supply • Design Studio-1 • Landscape Field Instruction-2 • Landscape Estimating-1 • Humanities <p>Semester 4 (23 hrs/wk)</p> <ul style="list-style-type: none"> • Principles of Arboriculture-2 • Project Management and Construction • Design Studio-2 • Site Layout and Construction Detailing-2 • Ornamental Plant Materials-4 	<ul style="list-style-type: none"> • Turf Management-1 (cont'd from Fall Semester) • Technical Writing 3 hrs • Applied Entomology 3 hrs • Landscape Construction 4 hrs • Pruning Practices 2 hrs • Turf Equipment 6 hrs • Human Relations 3 hrs • Introductory Plant Pathology 3 hrs • Weeds & Weed Control 3 hrs • Introduction to Irrigation & Water Quality 3 hrs <p>Spring/Summer Semester</p> <ul style="list-style-type: none"> • Turf Work Experience (16 weeks) 640 hrs. minimum <p>Second Year Fall Semester</p> <ul style="list-style-type: none"> • Digital Land Graphics • Project Management-1 5 hrs • Soils for Golf Courses 6 hrs • Golf Course Professionalism 3 hrs • Turf Management-2 6 hrs • Golf Course Drainage 3 hrs 	<ul style="list-style-type: none"> • New Ventures • Introduction to Self Directed Learning (fall & winter) <p>Third Year Electives</p> <ul style="list-style-type: none"> • Students may select a maximum of one 3-credit course at the diploma level. A diploma course should only be selected to acquire the prerequisite or co-requisite requirements for applied degree courses or to broaden a narrow focus of horticultural study. • Golf Course Construction & Renovations (fall) • Golf Course Master Planning (winter) • Water Management (fall) • Project Management (fall) • Business Law (fall) <p>Fourth Year Core Course</p> <ul style="list-style-type: none"> • Directed Field Study (spring, summer & fall) 	<ul style="list-style-type: none"> • Golf Course Project Management 56 hrs • Administrative Skills-I 42 hrs • Golf Course Irrigation-I 70 hrs • Golf Course Environmental Management 42 hrs • Golf Course Construction Projects 70 hrs • Golf Course Equipment III 42 hrs • Golf Course Practicum 700 hrs • Golf Course Presentations 28 hrs • Work Experience (16 weeks) <p>Semester 3</p> <ul style="list-style-type: none"> • Turfgrass Weeds/Insects and Sprayer Calibration 72 hrs • Golf Course Issues & Trends Seminar 24 hrs • Supervision & Labor Standards 48 hrs • Golf Course Irrigation Design & Audit 48 hrs • Environmental Issues Seminar 24 hrs

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • Horticulture Equipment Management • Mushroom Production • Viticulture & Oenology • Arboriculture <p>Semester 3 – Fall</p> <ul style="list-style-type: none"> • Business Management • Greenhouse Management • Plant Identification II <p>Elective Courses:(select 3)</p> <ul style="list-style-type: none"> • Computer Assisted Design • Applied Landscape Construction • Landscape Design II • Nursery Management • Turf Management • Horticultural Weed Science • Business Marketing <p>Semester 4 – Winter</p> <ul style="list-style-type: none"> • Human Resource Management • Business Project or Farm Project • Ornamental Plant Protection • Certification & Safety <p>Elective Courses:(select 3)</p> <ul style="list-style-type: none"> • Advanced Computer Assisted Design • Floral Design and Retailing • Greenhouse Crop Production • Tree Care Techniques 	<ul style="list-style-type: none"> • Landscape Construction Methods 2 hr/wk • Landscape Design & Materials 3 hr/wk • Pest Management 2 hr/wk • Plant Science-II 3 hr/wk <p>Term 3</p> <ul style="list-style-type: none"> • Co-op Work Placement <p>Term 4</p> <ul style="list-style-type: none"> • Advanced Communications for Horticulture 2 hr/wk • Nursery Management-II 3 hr/wk • Annuals & Herbaceous Perennials 3 hr/wk • Applied Plant Pathology 3 hr/wk • Weed Identification & Management 2 hr/wk • Turf Management 2 hr/wk • Greenhouse Crops-I 2 hr/wk • Parks Maintenance & Management 3 hr/wk • General Education Elective 3 hr/wk <p>Term 5</p> <ul style="list-style-type: none"> • Ecology 2 hr/wk • Interior Landscaping 3 hr/wk 	<p>Year 2 Semester IV</p> <ul style="list-style-type: none"> • Principles of Plant Pathology • Landscape Maintenance • Residential Landscape Design and Construction • Landscape Design and Construction • Elective • Required additional training: WHMIS, First Aid, OHS <p><i>Recommended Workplace Readiness Courses:</i></p> <ul style="list-style-type: none"> • Career and Employment Skills • Introduction to Public Speaking 	<ul style="list-style-type: none"> Licensing 2 Cr • Horticulture 2-Greenhouse Management 2 Cr • Equipment Maintenance 2.5 Cr • Landscape Equipment Operation & Workplace Safety- 1 Cr • Woody Evergreen Plant Identification 2 Cr <p>Level 3 (15 weeks)</p> <ul style="list-style-type: none"> • Landscape & Garden Maintenance-1 2.5 Cr • Arboriculture-2 3 Cr • Landscape Field Construction-1 3 Cr • This Business of Landscaping 3 Cr • Greenhouse Plant Production-1 3 Cr • Herbaceous Plant Identification <p>Level 4 (15 weeks)</p> <ul style="list-style-type: none"> • Landscape Field Constr-2 3 Cr • Integrated Pest Management 2 Cr • Greenhouse Plant Prod-2 3 Cr • Turf Management 2 Cr • Landscape & Garden Maintenance-2 2.5 Cr <p><i>Students must also complete the following</i></p>	<ul style="list-style-type: none"> • Soils, Soil Amendments & Soilless Media: An Introduction 3Cr • Introduction to Pest Management 3 Cr • Basic Landscape Operations 3Cr • Arboriculture-I 2 Cr • Plant ID-II 1.5 Cr <p>Year 1 Summer</p> <ul style="list-style-type: none"> • Horticultural Work Experience 2 Cr <p>Year 2 – Fall Semester 3</p> <ul style="list-style-type: none"> • Business Management in Horticulture 3 Cr • Advanced Turf Management 3 Cr • Turfgrass Pest Management 3 Cr • Irrigation, Drainage and Lighting 3 Cr • Sports Turf Management Practices 3 Cr <p>Year 2 Spring – Semester 4</p> <ul style="list-style-type: none"> • Supervisory Skills 3 Cr • Grounds Machinery 2 Cr • Golf Course Management 3 Cr • Turf Irrigation Systems: Design and Operation 3 Cr • Arboriculture-II 3 Cr

	RRC	HUMBER	OLDS	OLDS	NAIT
Courses cont'd	<ul style="list-style-type: none"> • Horticulture-1 60 hrs • Turfgrass Pests & Stresses 48 hrs • Landscape Design 60 hrs • Grounds Machinery-2 48 hrs • Arboriculture 72 hrs • Landscape Construction 72 hrs <p>Term 5 (academic 12 weeks)</p> <ul style="list-style-type: none"> • Horticulture-2 36 hrs • Advanced Turfgrass Management 60 hrs • Greenspace Irrigation Design 60 hrs • Arboriculture Provincial Exam 0 hrs • Introduction to Business 48 hrs • Essentials of Project Management 48 hrs • Diseases & Pests of Ornamentals 36 hrs <p>Term 6</p> <ul style="list-style-type: none"> • Co-op Work Experience <p>Term 7 (academic 12 weeks)</p> <ul style="list-style-type: none"> • Ecology 48 hrs • Professional Portfolios 20 hrs • Greenhouse Construction Management 	<ul style="list-style-type: none"> • Landscape Estimating-2 • General Education • General Education 	<ul style="list-style-type: none"> • Golf Course Planning & Layout 5 hrs • Golf Course Irrigation 6 hrs <p>Electives</p> <ul style="list-style-type: none"> • Woody Plants 3 hrs • Urban Forestry 3 hrs • Welding for Turf 6 hrs <p>Second Year Winter Semester</p> <ul style="list-style-type: none"> • Turf Management-2 (cont'd from Fall Semester) • Turf Pesticides, Application & Safety 5 hrs • Applied Ecology 3 hrs • Management Process & Practice 3 hrs • Pests of Turfgrass 6 hrs • Turf Management-2 6 hrs <p>Electives</p> <ul style="list-style-type: none"> • Introduction to GPS & Mapping 3 hrs • Irrigation Software & Auditing 		<ul style="list-style-type: none"> • Golf Course Planning /Design /Construction 48 hrs • Plant Materials I 60 hrs • Golf Course Practical Study 100 hrs <p>Semester 4</p> <ul style="list-style-type: none"> • Turfgrass Stress Physiology 42 hrs • Turfgrass Diseases 42 hrs • Soil Fertility & Management 70 hrs • Conference & Field Trip 25 hrs • Budget Management /Capitol Procurement 70 hrs • Integrated Pest Management for Golf Courses 42 hrs • Pesticide Applicator Exam 14 hrs • Plant Materials II 70 hrs • Comprehensive Golf Course Seminar 28 hrs

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
	<ul style="list-style-type: none"> • Floral Design Techniques 3 hr/wk • Organic Horticulture 3 hr/wk • Arboriculture 3 hr/wk • Horticulture Business & Sales 3 hr/wk • Greenhouse Crops-II 2 hr/wk • Leadership Skills 3 hr/wk 		<p><i>Mandatory Gen Ed Course:</i></p> <ul style="list-style-type: none"> • The History of Gardens 3 Cr (normally taken in level 3) • 6 general education credits (normally taken in levels 1 and 2) 	

	RRC	HUMBER	OLDS	OLDS	NAIT
Courses cont'd	<ul style="list-style-type: none"> • Supervisory Management 36 hrs • Grounds Machinery-3 48 hrs • Introduction to Statistics 24 hrs • Water Quality Management 48 hrs • Practicum Research Project 48 hrs 				
Student Assessment	<ul style="list-style-type: none"> • Content Theory Assessment <ul style="list-style-type: none"> ○ Traditional written examinations • Skills Assessment <ul style="list-style-type: none"> ○ Written test, practical demonstration, individual and group assignments • Assessment Practices for any Experiential Components <ul style="list-style-type: none"> ○ Co-op Work Experience booklet is completed and submitted by student and employer at the conclusion of both coop terms 		<ul style="list-style-type: none"> • A combination of written test/exams, skill demonstration, and evaluation of group work, oral & written presentations 	<ul style="list-style-type: none"> • A combination of written test/exams, skill demonstration, and evaluation of group work, oral & written presentations 	<ul style="list-style-type: none"> • "Traditional" • Mentorship in work placement • "Green Certificate Program"
Current and Coming Challenges	<ul style="list-style-type: none"> • Content • Delivery of Program • Changes to Industry Requirements 		<ul style="list-style-type: none"> • The wages associated with a booming local economy are making the choice to attend post-secondary education less attractive. 	<ul style="list-style-type: none"> • The wages associated with a booming local economy are making the choice to attend post-secondary education less attractive. 	<ul style="list-style-type: none"> • Enrolment close to crisis level • Lack of sufficient wages in industry • Competition with market (e.g. fast food employment salaries)

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • A combination of written test/exams, skill demonstration, and evaluation of group work, oral & written presentations 	<ul style="list-style-type: none"> • A combination of written test/exams, skill demonstration, and evaluation of group work, oral & written presentations. 	<ul style="list-style-type: none"> • A combination of written test/exams, skill demonstration, and evaluation of group work, oral & written presentations 		
<ul style="list-style-type: none"> • Promotion of the program – Ridgetown is very small campus (approx 500 students). 	<ul style="list-style-type: none"> • Continuing to forge relationships with industry to help offset costs of operation. • Building a modest structure to facilitate sheltered 	<ul style="list-style-type: none"> • Enrolment <ul style="list-style-type: none"> ○ Some recent rebound (Chinese University relationship) • Little government and industry demand 	<ul style="list-style-type: none"> • Need for additional equipment and indoor facilities in order to teach practical components during the 	

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Current and Coming Challenges	<ul style="list-style-type: none"> • The turf and landscape industry employers continue to express a substantial demand for trained labour that is expected to continue into the foreseeable future. • The lure of high wages in the oil & construction sectors over the past 2-3 years across western Canada, (for employment requiring limited skills and training), has pulled many existing and prospective (those considering college training) industry workers away. • Low wages by comparison, and seasonal work for those early in their careers, is a major issue hurting employee retention, especially in the prairie provinces where winters are long. 				<ul style="list-style-type: none"> • Golf courses saturated and have diminishing demand.

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • Would like to see incorporation of the many trade designations (e.g. CLP, Canadian Landscape Professional). 	<p>hands-on activities.</p> <ul style="list-style-type: none"> • Keeping up with their significant requirement for part-time instructors as availability and continuity is much more fluid. • Promoting their program in a very competitive market with other college programs geographically near-by. 	<ul style="list-style-type: none"> ○ Undergraduate (low demand) ○ Graduate (high demand) 	<p>inclement weather of winter months.</p>	

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Current and Coming Challenges	<ul style="list-style-type: none"> • Industry needs to continue to explore creative ways to overcome the seasonal employment problem and wages need to respond to the growing disparity with other competing sectors. • Coming into the 2007 employment season at RRC we are encouraged to see a significant increase of 10-20% in advertised wages for summer work Co-op job postings, most notably in the landscape sector. 				
Curriculum Renewal	<ul style="list-style-type: none"> • Curriculum adjustments are made on an as-needed basis. • Program Renewal or Face Validation occurring approximately every 5 years. • The Greenspace Management Program at RRC has entered its 10th academic year in 2006-07 without any 				

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	<ul style="list-style-type: none"> • They undertake a “summative review” (facts and figures relating to enrolment numbers, program costs, and progress on new initiatives) on a 3 year cycle • Program Reviews take place on a 10 year cycle in the form of a “peer audit” 			

	RRC	HUMBER	OLDS	OLDS	NAIT
Curriculum Renewal cont'd	<p>previous formal review.</p> <ul style="list-style-type: none"> • Program staff meet twice annually with program Advisory Committee that is comprised of industry representatives. 				
Partnerships	<ul style="list-style-type: none"> • R B Russell School, Winnipeg, MB • Erickson Collegiate, Erickson, MB • Earthshare, an agricultural cooperative affiliated with Fort Whyte Centre, Winnipeg, MB • Articulation agreement is in place with Olds College Horticulture Diploma Program 	<ul style="list-style-type: none"> • Humber has articulation arrangements with 12 universities including: Athabasca, Brock, Carleton, Nipissing, Queens, Trent, Guelph, Ottawa, Toronto, York, Ontario Institute of Technology and Western Sydney, Australia 	<ul style="list-style-type: none"> • Grads from the two-year Turfgrass Management diploma can move directly into third year of Olds College's Bachelor of Applied Science Golf Course Management program which is not offered at any other post-secondary institution in Canada. • Grads are eligible for a modified 2+2 block transfer to the Faculty of Agriculture, Forestry and Home Economics at the University of Alberta • Articulation arrangement with University of Lethbridge. 		<ul style="list-style-type: none"> • Course material is modeled after the Canadian Golf Superintendents Association National Occupational Standards. • Graduates may meet entrance requirements for: <ul style="list-style-type: none"> ○ University of Lethbridge: Bachelor of Science in Agriculture ○ Olds College: Applied Degree in Golf Course Management

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • There is an arrangement where students from a local high-school can take certain courses offered at Ridgetown for credit or advance standing. 	<ul style="list-style-type: none"> • Articulation is in place with Olds College Horticulture Diploma Program • University of Guelph offers a series of on-line courses that are accepted as program credits. • There is an informal arrangement to accept credits from other horticultural programs on a case-by-case basis. • Numerous arrangements for loan, lease or donations with respect to equipment and materials. 	<ul style="list-style-type: none"> • Most Atlantic Colleges/ Universities • Graduates can apply for a Bachelor of Technology in Environmental Horticulture. This two-year degree program is offered in association with Dalhousie University, and will prepare a student to work in the landscape industry or to start a business. This major could also lead to graduate studies at a Masters or PhD level in the area of landscape architecture and related fields. • Recent articulation arrangements with a Chinese University (2 years + 2 years) have generated an additional 10-15 student per year. 	<ul style="list-style-type: none"> • Articulation agreement is in place with Olds College Horticulture Diploma Program. • The College has active industry partnerships in areas such as: lawn and garden equipment and suppliers, greenhouse service suppliers, landscape suppliers and services and trade organization affiliations that fully endorse and support the program providing training opportunities on the latest equipment. 	<ul style="list-style-type: none"> • Diploma graduates have the option to continue their studies towards a Bachelor of Business Administration degree in Entrepreneurial Leadership or Human Resource Management at Kwantlen. • A degree in horticulture from Kwantlen, Bachelor of Science in Integrated Pest Management, has been approved by the Ministry of Advanced Education. Earliest enrolment would be September 2007. • The turf industry strongly supports student activities and achievement through student memberships, awards, and hosting field trips.

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Other		<ul style="list-style-type: none"> • Students arrange their own placement for the paid co-op work term and must successfully complete a career management course to help them develop effective job search skills, prior to the work term. • Humber also offers the Horticultural Technician Apprenticeship certificate and the Landscape Technician Co-op Apprenticeship Diploma programs. 	<ul style="list-style-type: none"> • Program has Irrigation, Computer Assisted Design (CAD), Geographic Information and Global Positioning System (GIS/GPS) labs. • Landscape construction and landscape installation is taught year-round in the Bank of Montreal Landscape Pavilion. 	<ul style="list-style-type: none"> • The Bachelor of Applied Science degree is comprised of 1 year of academic study followed by a year of Directed Field Study in industry. The introduction to Self Directed Learning course assists the student to develop a clearly defined learning plan that becomes the foundation of the Directed Field Study. 	<ul style="list-style-type: none"> • Turfgrass students have access to a Turfgrass Equipment Shop, Turfgrass Irrigation Laboratory, Welding Shop, Computer Laboratory, and campus grounds which include a 3-hole golf course.

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
<ul style="list-style-type: none"> • The J.J. Neilson Arboretum is located at the University of Guelph Ridgetown Campus. The Arboretum's primary role is to serve as an outdoor classroom for students in the Horticulture program. Working on the grounds with over 700 different plant species, in the greenhouses, and on various landscaping projects provides substantial hands-on experience for students • Each summer 3-5 students are hired as interns to work on campus grounds 	<ul style="list-style-type: none"> • Program is based at the College's Niagara-on-the-Lake campus, complete with plant retail area. Students use the campus grounds, greenhouses and interior plant display as a "living laboratory" • This program, along with most others at this campus location is operated as "Learning Enterprises". This means with the involvement of paid student labor they produce goods for retail sale to the general public. 	<ul style="list-style-type: none"> • Includes opportunities to study and travel abroad. This program will provide business, accounting, law, personnel management and communication courses that will prepare students for entrepreneurship. • Program Perk: Landscape Techniques Work Placement • Program-related Facilities: Greenhouses, Turfgrass Research Centre. 	<ul style="list-style-type: none"> • The emphasis in 2nd year is hands-on practical training. Approximately 80% of the scheduled class time is spent outside the classroom in courses such as Landscape Field Construction, Plant Production, Arboriculture and Garden and Landscape Maintenance. • Students and faculty participate in practical lab sessions while re-developing the grounds of the campus in real work situations. Students graduate with an Ontario College Diploma and are ready to write certification exams in chainsaw use, the provincial pesticide license and CHT (Certified Horticulture Technician) - a national standard of proficiency. 	<ul style="list-style-type: none"> • Educational facilities include a modern glass greenhouse, a range of poly-houses, a nursery, a three-hole demonstration golf turf field lab, science labs and a developing landscape. • Turf management learning is supported by a 1 hectare turf training facility. Two USGA specification greens and one modified soil green are used by students for maintenance research. Approximately 0.3 ha of turf is maintained as fairway and 0.4 ha is maintained for home lawn, athletic field and other medium maintenance uses. • The turf field lab is fully irrigated and students learn irrigation scheduling and maintenance on Rainbird, Toro, and Hunter systems. Students practice maintenance activities using the range of equipment typical of golf operations. Specialty areas such as turf species plots enrich student learning. Practical

	RRC	HUMBER	OLDS	OLDS	NAIT
Comments			<ul style="list-style-type: none"> •Olds is embarking on a college wide curriculum reform looking at everything from course content (lecture hours, practical experience, fieldtrips, home work etc.) and how this is reflected in credit hours, to delivery options with an objective building in flexibility for prospective students. 	<ul style="list-style-type: none"> •See OLDS <i>Turfgrass Management</i> Comments section. 	<ul style="list-style-type: none"> •It was suggested that in the short term they are foreseeing a struggle for educational programs in this industry (both 2 and 4 year programs). Prospective students are finding better alternatives elsewhere.

RIDGETOWN	NIAGARA	NOVA SCOTIA	FANSHAWE	KWANTLEN
				<p>activities at the turf lab run from September through mid November and from February to the end of the school year.</p>
			<ul style="list-style-type: none"> • Program is graduating approximately 80% of students. • Fanshawe will be conducting a program review in 2007-08. 	

Appendix B - Industry Occupational Analysis (DACUM) Chart

DACUM Skill Rating Scale

1 - Can perform some parts of this skill satisfactorily but requires assistance and/or supervision to perform the entire skill.
 2 - Can perform this skill satisfactorily but requires periodic assistance and/or supervision.

3 - Can perform this skill competently without assistance or supervision.
 4 - Can perform this skill competently without, assistance with more than acceptable quality, and with initiative/adaptability to unique situations.

MANAGE PROJECTS A

Manage budget A1	Manage conflict A2	Manage resources (human, physical, etc.) A3	Create / manage timelines A4	Locate / analyze sourcing options A5	Evaluate work processes A6	Record milestones and accomplishments A7	Develop project plans A8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Develop communication plans A9	Manage sign-off A10	Evaluate project A11	Synthesize outcomes and efficiencies A12				
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4				

DEMONSTRATE PROFESSIONALISM B
--

Demonstrate creativity B1	Practice flexibility B2	Assess personal skills and areas for growth B3	Solve problems B4	Develop a network with other professionals B5	Demonstrate a commitment to life-long learning B6	Maintain professional memberships / certification B7	Demonstrate integrity B8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Demonstrate ethical behaviour B9	Demonstrate leadership skills (i.e. lead by example / "walk the talk") B10	Demonstrate a positive attitude B11	Demonstrate respect for others B12	Practice / demonstrate a commitment to community and industry B13	Project a positive image B14	Maintain currency with industry products, trends, innovations B15	Demonstrate composure under duress B16
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Manage time B17	Maintain work-life balance B18	Display initiative B19	Manage change B20	Identify and utilize priorities B21	Mentor B22	Create resumes B23	Develop a professional portfolio B24
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Adhere to laws / regulations/ professional practices B 25							
1 2 3 4							

ANALYZE SITE ENVIRONMENT
C

Identify plant species C1	Analyze soil C2	Identify plant pests, stresses and diseases C3	Identify climatic conditions C4	Identify work site hazards C5	Analyze traffic patterns C6	Identify environmentally sensitive areas C7	Research and apply laws and regulations C8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Analyze existing water resources C9	Control quality C10	Evaluate area demographics and cultural norms C11	Collect samples C12	Develop, collect and maintain records C13			
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4			

USE TECHNOLOGY
D

Use word processing software D1	Use spreadsheet software D2	Use presentation software D3	Use database software D4	Use the Internet D5	Use hand-held radios and cell phones D6	Use irrigation operating systems D7	Operate environmental control software and hardware D8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Use industry-specific software D9	Upload web data D10	Use land survey equipment D11	Use GPS hand-helds D12	Use cameras D13	Use office machines D14	Use accounting software D15	
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	

COMMUNICATE
E

Develop presentations E1	Write reports E2	Demonstrate verbal skills E3	Question for clarification E4	Clarify / identify personal skill strengths / limitations E5	Develop rapport with others E6	Demonstrate negotiation skills E7	Explain / clarify directions/ instructions E8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Practice e-mail etiquette E9	Adapt language specific to audience E10	Demonstrate discretion E11	Use appropriate non-verbal communication E12	Interpret non-verbal communication E13	Write manuals E14	Practice telephone etiquette E15	Recognize and operate within established lines of communication E16
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Demonstrate listening skills E17	Use industry terminology E18	Interpret and apply instructions/directions (verbal, written) E19	Prepare proposals E20	Explain related laws and regulations E21			
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4			

MANAGE IRRIGATION SYSTEMS
F

Assess irrigation needs F1	Design irrigation system to meet needs / demand F2	Identify / describe irrigation systems and related components F3	Assemble irrigation components F4	Analyze system demands and solve problems F5	Test and calibrate systems F6	Operate irrigation systems (including start-up, blow-out etc.) F7	Describe irrigation system maintenance and operation F8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Formulate irrigation schedules F9	Test and analyze water F10	Interpret component specifications F11	Record irrigation data F12				
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4				

MARKET PRODUCTS AND SERVICES
G

Analyze market G1	Describe products G2	Describe services G3	Formulate prices G4	Develop niche market G5	Apply basic marketing principles G6	Develop marketing strategy G7
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4

MANAGE LAND DRAINAGE
H

Assess drainage needs H1	Design drainage and/or holding systems (surface and sub-surface) H2	Identify and analyze sub-soil conditions H3	Identify hazardous conditions or potentials H4	Evaluate the impact of drainage on environment H5	Identify flow patterns and volumes H6	Modify flow patterns and volumes H7	Identify / describe drainage systems and related components H8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Assemble drainage components H9	Test drainage systems H10	Interpret drainage plans H11	Construct drainage plans H12	Prepare and modify "as-built" drawings H13	Trouble-shoot drainage issues H14		
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4		

APPLY ARBORICULTURE THEORY, PRINCIPLES AND PRACTICES
I

Apply pruning practices I1	Apply removal practices I2	Climb trees I3	Assess/evaluate tree and shrub health I4	Identify hazardous trees I5	Develop and apply a plant health care program I6	Employ structural repair strategies and techniques I7	Prepare soil for planting I8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Apply principles of allelopathy I9	Apply principles of post-planting care I10	Prepare planting beds I11	Manage trees on construction projects I12	Integrate and use practices to minimize damage to trees I13			
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4			

APPLY PLANT SCIENCE
J

Apply propagation techniques J1	Manage plant life-cycle J2	Apply pathology theories and principles J3	Apply botany and physiology theories and principles J4	Use scientific terminology J5	Apply entomology theories and principles J6	Apply principles of soil science J7	Evaluate / select appropriate nutrition requirements J8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Employ nursery production procedures J9							
1 2 3 4							

DESIGN LANDSCAPES
K

Apply principles of design K1	Design plant beds / features K2	Select plant materials K3	Diagram landscape plans K4	Identify customer specifications K5	Estimate / calculate material quantities based on project design / specs K6	Estimate costs K7	Select landscape materials K8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Use measurement skills K9							
1 2 3 4							

BUILD LANDSCAPES
L

Assess logistics and schedule labour and materials L1	Employ appropriate construction methods L2	Select / co-ordinate sub-contractors L3	Manage construction staff L4	Assess and manage quality L5	Implement layout plans L6	Use tools appropriate to the task L7	Build / install hardscapes L8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Build / install softscapes L9							
1 2 3 4							

MAINTAIN LANDSCAPES
M

Identify client needs M1	Develop objectives to meet client needs M2	Develop site-specific maintenance plan M3	Organize resources M4	Implement cultural practices M5	Infer / analyze customer satisfaction M6	Apply I.P.M. strategies M7	Amend soil M8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Inform / explain effective landscape practices and reasons (to clients, co-workers) M9							
Demonstrate environmental stewardship practices M10							
1 2 3 4							

OPERATE AND MAINTAIN EQUIPMENT AND TOOLS
N

Demonstrate safe chainsaw use N1	Practice safe machinery and equipment operation N2	Follow workplace safety regulations and practices N3	Monitor / maintain equipment (cleaning, checking fluids, air, etc.) N4	Calibrate equipment N5	Identify existing and potential machinery problems N6	Follow equipment use and care manuals / directions N7	Develop training and orientation program N8
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Prepare equipment for transport N9	Sharpen tools and equipment N10	Fix / repair minor equipment problems N11	Use a skidsteer N12	Practice safe pesticide application N13			
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4			

MANAGE ASSETS
O

Manage inventory 01	Manage asset depreciation 02	Analyze / assess capital and equipment requirements 03	Manage infrastructure 04	Apply business and accounting principles 05	Plan strategically 06	Demonstrate a proactive approach to regulation / law compliance 07	Manage HR assets 08
1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4	1 2 3 4
Identify potential used-equipment buyers 09	Manage risk 010	Practice and apply first aid principles and procedures 011					
1 2 3 4	1 2 3 4	1 2 3 4					

Appendix C – Graduate Skills and Abilities Chart

GREENSPACE MANAGEMENT




Graduate Skills and Abilities Chart



Facilitated by: Robert Richard

Date: April 24/07

DACUM Skill Rating Scale:

- 1 Can perform some parts of this skill satisfactorily but requires assistance and/or supervision to perform the entire skill.
- 2 Can perform this skill satisfactorily but requires periodic assistance and/or supervision.
- 3 Can perform this skill competently without assistance or supervision.
- 4 Can perform this skill competently without assistance, with more than acceptable quality, and with initiative/adaptability to unique situations.

-  Indicates skill rating.
-  DACUM Committee Skill deleted.
-  Skill or Competency added by Faculty or DACUM wording changed.

-  Grey shaded Box = General Areas of Competency (GAC)
-  Unshaded Box = Specific skill within GAC
- Capitalized text in CWLOs = General Area of Competency (GAC)
- Normal text in CWLOs = Specific skills within GAC

Industry DACUM	Faculty Expectations	College-Wide Learning Outcomes (CWLOs)
MANAGE PROJECTS A	MANAGE PROJECTS A	D7 - evaluate solutions to make recommendations or decisions F4 - be accountable for your actions and the actions of your group G3 - be innovative and resourceful: identify and suggest alternative ways to achieve goals and get the job done J2 - ensure that a team's purpose and objectives are clear K1 - plan, design or carry out a project to task from start to finish with well-defined objectives and outcomes D5 - be creative and innovative in exploring possible solutions K6 - continuously monitor the success of a project or task and identify ways to improve J8 - understand the role of conflict in a group to reach solutions J9 - manage and resolve conflict when appropriate G2 - carry out multiple tasks or projects K2 - develop a plan, seek feedback, test, revise and implement
Manage budget	Manage budget	
A1	A1	
1 2 3 4	1 2 3 4	
Manage conflict	Manage conflict	
A2	A2	
1 2 3 4	1 2 3 4	
Manage human and physical resources	Manage human and physical resources	
A3	A3	
1 2 3 4	1 2 3 4	
Manage timelines	Manage timelines	
A4	A4	
1 2 3 4	1 2 3 4	
Identify sourcing options	Identify sourcing options	
A5	A5	
1 2 3 4	1 2 3 4	
Evaluate work processes	Evaluate work processes	
A6	A6	
1 2 3 4	1 2 3 4	

Record milestones and accomplishments A7 1 2 3 4	Record milestones and accomplishments A7 1 2 3 4	
Develop project plans A8 1 2 3 4	Develop project plans A8 1 2 3 4	
Develop communication plans A9 1 2 3 4	Develop communication plans A9 1 2 3 4	
Manage sign-off A10 1 2 3 4	Manage sign-off A10 1 2 3 4	
Evaluate project A11 1 2 3 4	Evaluate project A11 1 2 3 4	
	Prepare budgets A12 1 2 3 4	
1 2 3 4	1 2 3 4	

DEMONSTRATE PROFESSIONALISM B	DEMONSTRATE PROFESSIONALISM B	G5 - learn from your mistakes and accept feedback
Demonstrate creativity B1 1 2 3 4	Demonstrate creativity B1 1 2 3 4	E4 - take care of your personal health
Practice flexibility B2 1 2 3 4	Practice flexibility B2 1 2 3 4	G4 - be open and respond constructively to change
Assess personal skills and areas for growth B3 1 2 3 4	Assess personal skills and areas for growth B3 1 2 3 4	H4 - identify and access learning sources and opportunities
Solve problems B4 1 2 3 4	Solve problems B4 1 2 3 4	E5 - show interest, initiative and effort
		F5 - be social responsible and contribute to your community
		J3 - be flexible: respect, be open to and supportive of the thoughts, opinions and contributions of others in a group
		J5 - accept and provide feedback in a constructive and considerate manner
		J1 - understand and work within the dynamics of a group
		H5 - plan for and achieve your learning goals
		H3 - set your own learning goals
		H1 - be willing to continuously learn and grow
		E2 - deal with people, problems and situations with honesty, integrity and personal ethics
		E1 - feel good about yourself and be confident
		J4 - recognize and respect people's diversity, individual differences and perspectives
		E3 - recognize your own and other people's good efforts
		F1 - set goals and priorities balancing work and personal life

Develop a network with other professionals B5	Develop a network with other professionals B5	
1 2 3 4	1 2 3 4	
Demonstrate a commitment to life-long learning B6	Demonstrate a commitment to life-long learning B6	
1 2 3 4	1 2 3 4	
Maintain professional memberships / certification B7	Maintain professional memberships / certification B7	
1 2 3 4	1 2 3 4	
Demonstrate integrity B8	Demonstrate integrity B8	
1 2 3 4	1 2 3 4	
Demonstrate ethical behaviour B9	Demonstrate ethical behaviour B9	
1 2 3 4	1 2 3 4	
Demonstrate leadership skills B10	Demonstrate leadership skills B10	
1 2 3 4	1 2 3 4	
Demonstrate a positive attitude B11	Demonstrate a positive attitude B11	
1 2 3 4	1 2 3 4	
Demonstrate respect for others B12	Demonstrate respect for others B12	
1 2 3 4	1 2 3 4	
Demonstrate a commitment to community and to industry B13	Demonstrate a commitment to community and to industry B13	
1 2 3 4	1 2 3 4	
Project a positive image B14	Project a positive image B14	
1 2 3 4	1 2 3 4	
Maintain currency with industry products, trends, innovations B15	Maintain currency with industry products, trends, innovations B15	
1 2 3 4	1 2 3 4	

Demonstrate composure under duress B16	Demonstrate composure under duress B16	
1 2 3 4	1 2 3 4	
Manage time B17	Manage time B17	
1 2 3 4	1 2 3 4	
Maintain work-life balance B18	Maintain work-life balance B18	
1 2 3 4	1 2 3 4	
Display initiative B19	Display initiative B19	
1 2 3 4	1 2 3 4	
Manage change B20	Manage change B20	
1 2 3 4	1 2 3 4	
Identify and utilize priorities B21	Identify and utilize priorities B21	
1 2 3 4	1 2 3 4	
Mentor others B22	Mentor others B22	
1 2 3 4	1 2 3 4	
Create resumes B23 (moved to E22)	Adhere to laws, regulations, and professional practices B 23	
1 2 3 4	1 2 3 4	
Develop a professional portfolio B24 (moved to E23)	Be accountable B24	
1 2 3 4	1 2 3 4	
Adhere to laws, regulations, and professional practices B 25		
1 2 3 4		

ANALYZE SITE ENVIRONMENT C	ANALYZE SITE ENVIRONMENT C	D4 - identify the root cause of a problem B1 - locate, gather and organize information using appropriate technology and information systems C2 - observe and record data using appropriate methods, tools and technology D1 - assess situatio
Identify plant species C1 1 2 3 4	Identify plant species C1 1 2 3 4	
Analyse soil C2 1 2 3 4	Analyse soil C2 1 2 3 4	
Identify plant pests, stresses and diseases C3 1 2 3 4	Analyse plant pests, stresses and diseases C3 1 2 3 4	
Identify climatic conditions C4 1 2 3 4	Analyse climatic conditions C4 1 2 3 4	
Identify work site hazards C5 1 2 3 4	Analyse work site hazards C5 1 2 3 4	
Analyze traffic patterns C6 1 2 3 4	Analyze traffic patterns C6 1 2 3 4	
Identify environmentally sensitive areas C7 1 2 3 4	Analyse environmentally sensitive areas C7 1 2 3 4	
Apply bylaws and regulations C8 1 2 3 4	Research possible solutions C8 1 2 3 4	
Analyze existing water resources C9 1 2 3 4	Analyze existing water resources C9 1 2 3 4	
Evaluate area demographics and cultural norms C10 1 2 3 4	Analyse area demographics and cultural norms C10 1 2 3 4	

Collect samples C11 1 2 3 4	Collect samples C11 1 2 3 4	
Maintain records C12 1 2 3 4	Maintain records C12 1 2 3 4	

USE TECHNOLOGY D	USE TECHNOLOGY D	K4 - select and use appropriate tools and technology for a task or project A5 - use relevant scientific, technological and mathematical knowledge and skills to explain or clarify ideas D6 - readily use science, technology and mathematics as ways to think, gain and share knowledge, solve problems and make decisions
Use word processing software D1 1 2 3 4	Use MS "Office" software package D1 1 2 3 4	
Use spreadsheet software D2 1 2 3 4	Use the Internet D2 1 2 3 4	
Use presentation software D3 1 2 3 4	Use hand-held radios and cell phones D3 1 2 3 4	
Use database software D4 1 2 3 4	Use irrigation operating systems D4 1 2 3 4	
Use the Internet D5 1 2 3 4	Use industry-specific software D5 1 2 3 4	
Use hand-held radios and cell phones D6 1 2 3 4	Use land survey equipment D6 1 2 3 4	
Use irrigation operating systems D7 1 2 3 4	Use GPS hand-helds D7 1 2 3 4	
Operate environmental control software and hardware D8 1 2 3 4	Use cameras D8 1 2 3 4	

Use industry-specific software				
D9				
1	2	3	4	
Upload web data				
D10				
1	2	3	4	
Use land survey equipment				
D11				
1	2	3	4	
Use GPS hand-helds				
D12				
1	2	3	4	
Use cameras				
D13				
1	2	3	4	
Use office machines				
D14				
1	2	3	4	
Use accounting software				
D15				
1	2	3	4	

COMMUNICATE E	COMMUNICATE E	<p>A4 - share information using a range of information and communications technologies (e.g. voice, e-mail, computers)</p> <p>G1 - work independently or as a part of a team</p> <p>A1 - read and understand information presented in a variety of forms (e.g. words, graphs, charts, diagrams)</p> <p>A2 - write and speak so others pay attention and understand</p> <p>A3 - listen and ask questions to understand and appreciate the points of view of others</p> <p>H2 - assess personal strengths and areas for development</p> <p>D2 - seek different points of view and evaluate them based on facts</p>		
Develop presentations	Develop presentations			
E1	E1			
1	2		3	4
Write reports	Write reports			
E2	E2			
1	2		3	4
Demonstrate verbal skills	Demonstrate verbal skills			
E3	E3			
1	2	3	4	

Question for clarification	Question for clarification	
E4	E4	
1 2 3 4	1 2 3 4	
Identify personal skill	Identify personal skill	
E5	E5	
1 2 3 4	1 2 3 4	
Develop rapport with others	Develop rapport with others	
E6	E6	
1 2 3 4	1 2 3 4	
Demonstrate negotiation skills	Demonstrate negotiation skills	
E7	E7	
1 2 3 4	1 2 3 4	
Clarify instructions	Clarify instructions	
E8	E8	
1 2 3 4	1 2 3 4	
Practice e-mail etiquette	Practice e-mail etiquette	
E9	E9	
1 2 3 4	1 2 3 4	
Adapt language specific to audience	Adapt language specific to audience	
E10	E10	
1 2 3 4	1 2 3 4	
Demonstrate discretion	Demonstrate discretion	
E11	E11	
1 2 3 4	1 2 3 4	
Use appropriate non-verbal communication	Use appropriate non-verbal communication	
E12	E12	
1 2 3 4	1 2 3 4	
Interpret non-verbal communication	Interpret non-verbal communication	
E13	E13	
1 2 3 4	1 2 3 4	
Write manuals	Write manuals	
E14	E14	
1 2 3 4	1 2 3 4	

Practice telephone etiquette E15	Practice telephone etiquette E15	
1 2 3 4	1 2 3 4	
Operate within established lines of communication	Operate within established lines of communication	
E16	E16	
1 2 3 4	1 2 3 4	
Demonstrate listening skills	Demonstrate listening skills	
E17	E17	
1 2 3 4	1 2 3 4	
Use industry terminology	Use industry terminology	
E18	E18	
1 2 3 4	1 2 3 4	
Follow instructions	Follow instructions	
E19	E19	
1 2 3 4	1 2 3 4	
Prepare proposals	Prepare proposals	
E20	E20	
1 2 3 4	1 2 3 4	
Explain related bylaws and regulations	Explain related bylaws and regulations	
E21	E21	
1 2 3 4	1 2 3 4	
	Create resumes	
	E 22	
	1 2 3 4	
	Develop a professional portfolio	
	E23	
	1 2 3 4	
	Conduct effective meetings	
	E24	
	1 2 3 4	

MANAGE IRRIGATION SYSTEMS F	MANAGE IRRIGATION SYSTEMS F	
Assess irrigation needs F1	Assess irrigation needs F1	
1 2 3 4	1 2 3 4	
Design irrigation system to meet needs F2	Design irrigation system to meet needs F2	
1 2 3 4	1 2 3 4	
Describe irrigation systems and related components F3	Describe irrigation systems and related components F3	
1 2 3 4	1 2 3 4	
Assemble irrigation components F4	Assemble irrigation components F4	
1 2 3 4	1 2 3 4	
Analyse system demands and solve problems F5	Analyse system demands and solve problems F5	
1 2 3 4	1 2 3 4	
Test and calibrate systems F6	Test and calibrate systems F6	
1 2 3 4	1 2 3 4	
Operate irrigation systems F7	Operate irrigation systems F7	
1 2 3 4	1 2 3 4	
Describe irrigation system operation and maintenance F8	Describe irrigation system operation and maintenance F8	
1 2 3 4	1 2 3 4	
Develop irrigation schedules F9	Develop irrigation schedules F9	
1 2 3 4	1 2 3 4	
Analyse water F10	Analyse water F10	
1 2 3 4	1 2 3 4	

Interpret component specifications F11	Interpret component specifications F11	
1 2 3 4	1 2 3 4	
Record irrigation data F12	Record irrigation data F12	
1 2 3 4	1 2 3 4	

MARKET PRODUCTS AND SERVICES G		
Analyze market G1		
1 2 3 4	1 2 3 4	
Describe product G2		
1 2 3 4	1 2 3 4	
Describe services G3		
1 2 3 4	1 2 3 4	
Set product and service prices G4		
1 2 3 4	1 2 3 4	
Identify niche market G5		
1 2 3 4	1 2 3 4	
Apply basic marketing principles G6 (moved to N12)		
1 2 3 4	1 2 3 4	
Develop marketing plan G7		
1 2 3 4	1 2 3 4	

MANAGE LAND DRAINAGE H	MANAGE LAND DRAINAGE H	
Assess drainage needs H1 1 2 3 4	Assess drainage needs H1 1 2 3 4	
Design drainage and/or holding systems H2 1 2 3 4	Design drainage and/or holding systems H2 1 2 3 4	
Analyze sub-soil conditions H3 1 2 3 4	Analyze sub-soil conditions H3 1 2 3 4	
Identify real and/or potential hazardous conditions. H4 1 2 3 4	Identify real and/or potential hazardous conditions. H4 1 2 3 4	
Evaluate the impact of drainage on environment H5 1 2 3 4	Evaluate the impact of drainage on environment H5 1 2 3 4	
Identify flow patterns and volumes H6 1 2 3 4	Identify flow patterns and volumes H6 1 2 3 4	
Modify flow patterns and volumes H7 1 2 3 4	Modify flow patterns and volumes H7 1 2 3 4	
Describe drainage systems and related components H8 1 2 3 4	Describe drainage systems and related components H8 1 2 3 4	
Assemble drainage component H9 1 2 3 4	Assemble drainage component H9 1 2 3 4	
Test drainage systems H10 1 2 3 4	Test drainage systems H10 1 2 3 4	

Interpret drainage plans H11	Interpret drainage plans H11	
1 2 3 4	1 2 3 4	
Construct drainage systems H12	Construct drainage systems H12	
1 2 3 4	1 2 3 4	
Prepare and modify "as-built" drawings H13	Prepare and modify "as-built" drawings H13	
1 2 3 4	1 2 3 4	
Trouble-shoot drainage issues H14	Trouble-shoot drainage issues H14	
1 2 3 4	1 2 3 4	

APPLY ARBORICULTURE THEORY, PRINCIPLES AND PRACTICES I	MANAGE PLANT MATERIALS I	
Apply pruning practices I1	Apply removal practices I1	
1 2 3 4	1 2 3 4	
Apply tree and shrub removal practices I2	Develop and apply a plant health care program I2	
1 2 3 4	1 2 3 4	
Climb trees I3	Assess plant health I3	
1 2 3 4	1 2 3 4	
Assess tree and shrub health I4	Apply I.P.M. strategies I4	
1 2 3 4	1 2 3 4	
Identify hazardous trees I5	Amend soil I5	
1 2 3 4	1 2 3 4	
Develop and apply a plant health care program I6	Implement cultural practices I6	
1 2 3 4	1 2 3 4	

Employ structural repair strategies and techniques I7	Apply mowing practices I7	
1 2 3 4	1 2 3 4	
Prepare soil for planting I8	Prepare soil for planting I8	
1 2 3 4	1 2 3 4	
Apply principles of allelopathy I9	Apply principles of post-planting care I9	
1 2 3 4	1 2 3 4	
Apply principles of post-planting care I10	Manage weeds I10	
1 2 3 4	1 2 3 4	
Prepare planting beds I11	Manage plants on construction projects I11	
1 2 3 4	1 2 3 4	
Manage trees on construction projects I12	Follow practices to minimize damage to plants I12	
1 2 3 4	1 2 3 4	
Follow practices to minimize damage to trees I13	Manage plant life-cycle I13	
1 2 3 4	1 2 3 4	
	Apply pathology theories and principles I14	
	1 2 3 4	
	Interpret botany and physiology theories and principles I15	
	1 2 3 4	
	Use scientific terminology I16	
	1 2 3 4	
	Apply entomology theories and principles I17	
	1 2 3 4	

Apply principles of soil science					
I18					
1	2	3	4		
Manage nutritional requirements					
I19					
1	2	3	4		
Employ plant production procedures					
I20					
1	2	3	4		
Manage indoor environments					
I21					
1	2	3	4		

APPLY PLANT SCIENCE THEORY, PRINCIPLES AND PRACTICES J	DESIGN GREENSPACES J			
Apply propagation practices	Apply principles of design			
J1	J1			
1	2	3	4	
Manage plant life-cycle	Design softscape and hardscape features			
J2 (moved to I13)	J2			
1	2	3	4	
Apply pathology theories and principles	Select plant materials			
J3 (moved to I14)	J3			
1	2	3	4	
Apply botany and physiology theories and principles	Diagram greenspace plans			
J4 (moved to I15)	J4			
1	2	3	4	
Use scientific terminology	Identify customer specifications			
J5 (moved to I16)	J5			
1	2	3	4	
Apply entomology theories and principles	Select greenspace materials			
J6 (moved to I17)	J6			
1	2	3	4	

Apply principles of soil science J7 (moved to I18)	Use measurement skills J7	
1 2 3 4	1 2 3 4	
Determine nutritional requirements J8	Develop specifications J8	
1 2 3 4	1 2 3 4	
Employ nursery production practices J9 (moved to I20)		
1 2 3 4		

DESIGN LANDSCAPES K	BUILD GREENSPACES K	K5 - adapt to changing requirements and information
Apply principles of design K1 (moved to J1)	Schedule labour, equipment and materials K1	
1 2 3 4	1 2 3 4	
Design plant beds and hardscape features K2 (moved to J2)	Employ appropriate construction methods K2	
1 2 3 4	1 2 3 4	
Select plant materials K3 (moved to J3)	Manage the sub-contractor tender and selection process K3	
1 2 3 4	1 2 3 4	
Diagram landscape plans K4 (moved to J4)	Manage construction staff K4	
1 2 3 4	1 2 3 4	
Identify customer specifications K5 (moved to J5)	Monitor project quality K5	
1 2 3 4	1 2 3 4	
Calculate material quantities based on landscape plans K6	Implement greenspace layout K6	
1 2 3 4	1 2 3 4	

Estimate costs K7	Use tools appropriate to the task K7	
1 2 3 4	1 2 3 4	
Select landscape materials K8 (moved to J6)	Build softscapes and hardscapes K8	
1 2 3 4	1 2 3 4	
Use measurement skills K9 (moved to J7)	Calculate material quantities based on greenspace plans K9	
1 2 3 4	1 2 3 4	
	Interpret blueprints and specifications K10	
	1 2 3 4	

BUILD LANDSCAPES L	MAINTAIN GREENSPACES L	C3 - make estimates and verify calculations C1 - decide what needs to be measured or calculated K3 - work to agreed quality standards and specifications G6 - cope with uncertainty
Schedule labour, equipment and materials L1 (moved to K1)	Identify client needs L1	
1 2 3 4	1 2 3 4	
Employ appropriate construction methods L2 (moved to K2)	Develop a plan to meet client needs L2	
1 2 3 4	1 2 3 4	
Manage the sub-contractor tender and selection process L3 (moved to K3)	Develop site-specific maintenance plan L3	
1 2 3 4	1 2 3 4	
Manage construction staff L4 (moved to K4)	Organize resources L4	
1 2 3 4	1 2 3 4	
Monitor project quality L5 (moved to K5)	Monitor customer satisfaction L5	
1 2 3 4	1 2 3 4	
Implement landscape layout L6 (moved to K6)	Implement effective greenspace practices L6	
1 2 3 4	1 2 3 4	

Implement landscape layout L6 (moved to K6)	Implement effective greenspace practices L6	
1 2 3 4	1 2 3 4	
Use tools appropriate to the task L7 (moved to K7)	Practice environmental stewardship L7	
1 2 3 4	1 2 3 4	
Build hardscapes L8	Practice safe pesticide application L8	
1 2 3 4	1 2 3 4	
Build softscapes L9 (moved to K8)		
1 2 3 4	1 2 3 4	

MAINTAIN LANDSCAPES M	OPERATE AND MAINTAIN EQUIPMENT AND TOOLS M	D8 - implement solutions D9 - check to see if a solution works, and act on opportunities for improvement
Identify client needs M1 (moved to L1)	Follow workplace safety regulations and practices M1	
1 2 3 4	1 2 3 4	
Develop objectives to meet client needs M2 (moved to L2)	Maintain equipment following manufacturer's instructions M2	
1 2 3 4	1 2 3 4	
Develop site-specific maintenance plan M3 (moved to L3)	Calibrate equipment M3	
1 2 3 4	1 2 3 4	
Organize resources M4 (moved to L4)	Identify existing and potential equipment and machinery problems M4	
1 2 3 4	1 2 3 4	
Implement cultural practices M5 (moved to I6)	Operate equipment following manufacturer's instructions M5	
1 2 3 4	1 2 3 4	
Monitor customer satisfaction M6 (moved to L5)	Develop training and orientation program M6	
1 2 3 4	1 2 3 4	

Apply I.P.M. strategies M7 (moved to I4)	Prepare equipment for transport following manufacturer's instructions M7	
1 2 3 4	1 2 3 4	
Amend soil M8 (moved to I5)	Sharpen tools and equipment M8	
1 2 3 4	1 2 3 4	
Outline effective landscape practices M9 (moved to L6)	Repair minor equipment problems M9	
1 2 3 4	1 2 3 4	
Employ environmental stewardship practices M10 (moved to L7)		
1 2 3 4		

OPERATE AND MAINTAIN EQUIPMENT AND TOOLS N (moved to M)	MANAGE A BUSINESS N	I1 - be aware of personal and group health and safety practices and procedures, and act in accordance with these J7 - lead or support when appropriate, motivating a group for high performance J6 - contribute to a team by sharing information and expertise F2 - plan and manage time, money and other resources to achieve goals F3 - assess, weigh and manage risk
Use chainsaw safely N1	Manage inventory N1	
1 2 3 4	1 2 3 4	
Operate machinery and equipment safely N2	Manage assets and liabilities N2	
1 2 3 4	1 2 3 4	
Follow workplace safety regulations and practices N3 (moved to M1)	Identify capital and equipment requirements N3	
1 2 3 4	1 2 3 4	
Maintain equipment following manufacturer's instructions N4 (moved to M2)	Manage infrastructure N4	
1 2 3 4	1 2 3 4	
Calibrate equipment N5 (moved to M3)	Apply accepted business and accounting principles N5	
1 2 3 4	1 2 3 4	

Identify existing and potential equipment and machinery problems N6 (moved to M4)	Plan strategically N6	
1 2 3 4	1 2 3 4	
Operate equipment following manufacturer's instructions N7 (moved to M5)	Demonstrate a proactive approach to regulation / law compliance N7	
1 2 3 4	1 2 3 4	
Develop training and orientation program N8 (moved to M6)	Manage HR assets N8	
1 2 3 4	1 2 3 4	
Prepare equipment for transport following manufacturer's instructions N9 (moved to M7)	Analyse equipment procurement options N9	
1 2 3 4	1 2 3 4	
Sharpen tools and equipment N10 (moved to M8)	Manage risk N10	
1 2 3 4	1 2 3 4	
Repair minor equipment problems N11 (moved to M9)	Apply accepted first aid principles and procedures N11	
1 2 3 4	1 2 3 4	
Use a skid steer N12	Apply basic marketing principles N12	
1 2 3 4	1 2 3 4	
Practice safe pesticide application N13 (moved to L8)	Develop a business plan N13	
1 2 3 4	1 2 3 4	

MANAGE ASSETS O		
Manage inventory O1 (moved to N1)		
1 2 3 4	1 2 3 4	
Manage asset depreciation O2 (moved to N2)		
1 2 3 4	1 2 3 4	

Identify capital and equipment requirements									
03 (moved to N3)									
1	2	3	4	1	2	3	4		
Manage infrastructure									
04 (moved to N4)									
1	2	3	4	1	2	3	4		
Apply accepted business and accounting principles									
05 (moved to N5)									
1	2	3	4	1	2	3	4		
Plan strategically									
06 (moved to N6)									
1	2	3	4	1	2	3	4		
Demonstrate a proactive approach to regulation / law compliance									
07 (moved to N7)									
1	2	3	4	1	2	3	4		
Manage HR assets									
08 (moved to N8)									
1	2	3	4	1	2	3	4		
Identify potential used-equipment buyers									
09									
1	2	3	4	1	2	3	4		
Manage risk									
010 (moved to N10)									
1	2	3	4	1	2	3	4		
Apply accepted first aid principles and procedures									
011 (moved to N11)									
1	2	3	4	1	2	3	4		

Appendix D - Graduate Profile

Greenspace Management

Graduate Profile

The Greenspace Management Graduate:

- Conducts comprehensive site assessments using a variety of instruments and techniques to observe, collect, test, measure and determine land use suitability.
- Develops greenspace designs that integrate hardscape and softscape features that are visually appropriate, functional, and environmentally responsible and meet client requirements.
- Applies knowledge of plant material to effectively match plants to site conditions.
- Installs and maintains hardscape and softscape elements following the best practices found in industry.
- Uses the project specifications to identify material, labor, and equipment requirements and to prepare accurate cost estimates for all aspects of a greenspace project.
- Carries out a variety of maintenance tasks and procedures to maintain and manage a greenspace on a regular basis over a period of time.
- Applies plant science principles and uses effective propagation, planting, cultivation and maintenance practices to manage all plant materials.
- Utilizes effective management skills for business environments.
- Prepares and utilizes budgets to manage the financial operation of a greenspace business.
- Uses computers, industry specific software and other specialized technology in all aspects of greenspace management.
- Keeps current with the advances in the technology used in the greenspace industry.
- Communicates effectively using written, spoken, and non-verbal communication skills that fulfills the purpose and meets the needs of the audience.
- Reads and interprets information in a variety of formats (e.g. manuals, contracts, forms, schematics, tender documents and drawings) to plan and complete tasks.
- Maintains high standards in all aspects of the job by adhering to quality assurance practices.
- Interacts with others in ways that contribute to effective working relationships and the completion of tasks.
- Works as a professional, demonstrating a positive attitude, commitment, and discipline.
- Learns continuously, keeping up-to-date with industry skills requirements.

- Identifies and pursues opportunities for licensing, professional memberships, certifications and accreditations.
- Plans, executes, and concludes a wide range of greenspace projects following accepted project management principles.
- Advocates for and practices environmental stewardship.
- Applies the principles and practices of Integrated Pest Management to ensure environmentally responsible actions or alterations.
- Works safely, following relevant government and industry guidelines, regulations, standards, safety codes and practices.
- Operates equipment and tools according to manufacturer's instructions.
- Creates and maintains detailed and accurate records in the planning, implementation and maintenance of greenspace sites and organizations.

Appendix E - 5-Year Program Renewal Plan timelines in Gantt format