Area of Interest: Environmental and Applied Sciences

Forestry Technician

Ontario College Diploma
45 Weeks
Pembroke Campus

Program Code: 0108X04FPM

Our Program

Get an edge on a career in the great outdoors - earn a minimum of 10 industry certifications plus a Diploma.

The two-year Forestry Technician Ontario College Diploma program, delivered in a compressed format over 45 weeks, is the most hands-on and field-oriented program of its kind in Ontario. It prepares students in the implementation and influence of best practices of good forest management in an ecological, environmental and social context. Students interact with forest industry, sustainable forest license holders, private woodlot owners and government organizations at all levels.

Gain experience in the planning, execution and monitoring of forest, environment, ecosystem and wildlife management activities.

Spend approximately one-third of class time outdoors, exploring a variety of landscapes such as forests, parks and private woodlots. Practise collecting, compiling and analyzing forest resource data while learning to make recommendations for its use.

Benefit from the opportunity to earn a minimum of 10 industry certifications. These are customizable and give you an advantage entering the workforce.

In third semester, complete an 80-hour field placement. This gives you the opportunity to practise new skills in a real work setting.

With a Forestry Technician diploma, graduates may find entry-level work in the fields of:

- tree marking
- forest inventory
- forest environment and ecosystem assessment
- compliance monitoring
- forest renewal
- harvesting
- parks and wildlife management
- nature interpretation
- arboriculture
- bio-energy management
- forest fire control

SUCCESS FACTORS

This program is well-suited for students who:

- Thrive in an active, outdoor, hands-on learning environment.

- Have an interest in protecting, sustaining and enhancing our natural environment and forest ecosystem.

- Can work well independently or as a member of a team.

- Have good communication skills.

Employment

Graduates are well prepared to enter the workforce or to further their studies through university or the natural resources law enforcement (conservation officer) program. Geographic mobility is usually a prerequisite to employment with forestry companies, governments, private woodlot owners, hydro, municipalities, conservation authorities or resource consultants. Graduates may find entry-level work in the fields of tree marking, forest inventory, forest environment and ecosystem assessment, compliance monitoring, forest renewal, harvesting, parks, wildlife management, nature interpretation, arboriculture, bio-energy management and forest fire control. Self-employment as a forestry contractor or consultant is another avenue graduates may decide to pursue.

Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Conduct forest inventory surveys and field measurements to determine forest resources and values in forests and woodlots.

- Assess soil characteristics, vegetation and wildlife habitats to identify their interactions within forest ecosystems.

- Perform technical functions in silvicultural operations and assist in the monitoring and evaluation of the effectiveness of silvicultural practices.

- Collect, analyze, interpret, and display spatial data using mapping technology and Geographical Information Systems (GIS) to contribute to forest resource management.

- Contribute to sustainable forest management plans, including conservation and rehabilitation measures, taking into consideration the perspectives of a variety of stakeholders and the requirements of relevant legislation and regulations.

- Identify and analyze forest diseases, pests, invasive species and other disturbance events and implement mitigation strategies to maintain and improve forest ecosystems.

- Select, operate, troubleshoot and maintain tools and equipment in a variety of environmental conditions and in accordance with safety and operating standards.

- Work independently and in a collaborative environment while applying effective teamwork, leadership and interpersonal skills.

- Communicate technical information to a variety of stakeholders in oral, written, visual and electronic forms.

- Develop strategies for ongoing professional development to enhance work performance in the forestry sector.

- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

Program of Study

Level: 01	Courses	Hours
DAT7670	Computer Applications	28.0
ENL7777	Communications I	42.0
FOR7310	The Forest Environment	56.0
FOR7311	Dendrology	56.0
FOR7312	Ecology	56.0
FOR7314	Soils and Landforms	42.0
FOR7316	Wildlife	56.0
FOR7317	Remote Sensing	56.0
FOR7322	Forest Health	42.0
Level: 02	**Courses**	**Hours**
ENL7679	Communications for Forestry Technicians	42.0
FOR7313	Geographic Information Systems	60.0
FOR7321	Mensuration	49.0
FOR7324	Silviculture	64.0
FOR7325	Harvesting	49.0
FOR7327	Fire Management	56.0
FOR7340	Arboriculture	40.0
FOR7351	Parks Operation	42.0
Choose one from equivalencies:	**Courses**	**Hours**
GED1108	General Education Elective	42.0
Level: 03	**Courses**	**Hours**
FOR7331	Land Stewardship	42.0
FOR7333	Forest Access	42.0
FOR7334	Forest Management	84.0
FOR7335	Ecological Land Classification	36.0
FOR7337	Tree Marking	42.0
FOR7339	Certifications	60.0
FOR7346	Advanced Techniques	42.0
FOR7347	Freshwater Environments	42.0
FOR7348	Silvicultural Surveys	42.0
FOR7352	Field Placement	80.0

Fees for the 2023/2024 Academic Year

Tuition and ancillary fees for this program can be viewed by using the Tuition and Fees

Estimator tool at https://www.algonquincollege.com/fee-estimator .

Further information on fees can be found by visiting the Registrar`s Office website at https://www.algonquincollege.com/ro .

Fees are subject to change.

Additional program related expenses include:

- Resources will be available as hardcover and/or eTexts. Estimated cost of texts is approximately $150 per semester.

- Major, one-time equipment costs are approximately $600.

- As part of a two-week certification period in the final level, fees for certification courses are assessed separately and are announced early in the program.

- Students should arrive with a CSA-approved hard hat and 8 high work boots, a Fox 40 whistle, a high visibility vest, clear safety glasses and equipment to take pictures (smart phone). A compass, wedge prism and diameter tape are included in program fees and provided to all students at the start of the program.

Admission Requirements for the 2024/2025 Academic Year

College Eligibility

- Ontario Secondary School Diploma (OSSD) or equivalent. Applicants with an OSSD showing senior English and/or Mathematics courses at the Basic Level, or with Workplace or Open courses, will be tested to determine their eligibility for admission; OR

- Academic and Career Entrance (ACE) certificate; OR

- General Educational Development (GED) certificate; OR

- Mature Student status (19 years of age or older and without a high school diploma at the start of the program). Eligibility may be determined by academic achievement testing for which a fee of $50 (subject to change) will be charged.

Program Eligibility

- English, Grade 12 (ENG4C or equivalent).

- Mathematics, Grade 11 (MCF3M or equivalent).

- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).

- IELTS-International English Language Testing Service (Academic) Overall band of 6.0 with a minimum of 5.5 in each band; OR TOEFL-Internet-based (iBT) Overall 80, with a minimum of 20 in each component: Reading 20; Listening 20; Speaking 20; Writing 20; OR Duolingo English Test (DET) Overall 110, minimum of 110 in Literacy and no score below 95.

Should the number of qualified applicants exceed the number of available places, applicants will be selected on the basis of their proficiency in English and mathematics.

A current Standard First Aid and CPR certificate is preferred prior to registration. Otherwise, the student must obtain the certificate within the first two months of the first level. Applicants must sign and submit a Forestry Technician Program Assumption of Risk and Indemnifying Release Form.

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An up-to-date tetanus booster is preferred prior to class. This immunization is available at no cost through the College health services.

Application Information

FORESTRY TECHNICIAN
Program Code 0108X04FPM

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca
60 Corporate Court
Guelph, Ontario N1G 5J3
1-888-892-2228

Students currently enrolled in an Ontario secondary school should notify their Guidance Office prior to their online application at http://www.ontariocolleges.ca/ .

Applications for Fall Term and Winter Term received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants applying from out-of-country can obtain the International Student Application Form at https://algonquincollege.force.com/myACint/ or by contacting the Registrar`s Office.

For further information on the admissions process, contact:

Registrar`s Office
Algonquin College in the Ottawa Valley
1 College Way

Pembroke, ON K8A0C8
Local: 613-735-4700
Toll-free 1-800-565-4723
TTY: 1-866-620-3845
Fax: 613-735-4739
https://algonquincollege.com/pembroke

Additional Information

In order to prepare our graduates to be the best in their field, we believe the educational environment must closely resemble the work environment, including the associated risks. Risk, therefore, is an inherent part of the educational environment.

A total of two weeks are spent on placement in a resource-oriented organization chosen by the student, anywhere in the world. Should the opportunity arise, the student may choose instead to partake in an applied forestry research project supervised by the college and/or one of its partners.

Note: Students may register in the Provincial Scaling course in lieu of field placement. The cost of this course is in addition to the previously established program tuition.

Students contemplating taking Forestry at a university should seriously consider our program first, as we provide a one year, hands-on, practical, field-oriented program. Our articulation agreement with Lakehead University allows you to enter their Forestry or Forest Conservation program in the second or third year. We also have an articulation agreement with the University of New Brunswick in their Faculty of Forestry and Environmental Management.

Applicants who participated in the Specialist High Skills Major - Forestry and/or Environment may be eligible for exemptions, in whole or in part, for some of the Forestry Technician courses. Applicants should bring documents to the program coordinator for review, particularly co-op placement and industry certifications.

Contact Information

Program Coordinator(s)

- Peter Arbour, mailto:arbourp@algonquincollege.com , 613-735-4700, ext. 2738

Course Descriptions

DAT7670 Computer Applications

The ability to communicate effectively using technology is essential in the education and employment fields. Students develop and apply college and workplace specific computer skills, and become familiar with e-learning resources. Email, word processing, internet searches and interaction with web-based tools relevant to the industry are practised. The effective use of presentation software and the visualization of data using both spreadsheets and graphics are key areas of focus.

Prerequisite(s): none
Corerequisite(s):none

ENL7679 Communications for Forestry Technicians

Students develop workplace communication skills. Topics include written and oral reports; correspondence; technical writing style; resumes; locating, evaluating, and documenting technical information; interpreting and using visuals; and other communication skills that forestry technicians require in today's workplace.

Prerequisite(s): ENL7777
Corerequisite(s):none

ENL7777 Communications I

Communication remains an essential skill sought by employers, regardless of discipline or field of

study. Using a practical, vocation-oriented approach, students focus on meeting the requirements of effective communication. Through a combination of lectures, exercises, and independent learning, students practise writing, speaking, reading, listening, locating and documenting information and using technology to communicate professionally. Students develop and strengthen communication skills that contribute to success in both educational and workplace environments.

Prerequisite(s): none
Corerequisite(s):none

FOR7310 The Forest Environment

Students practise the basic skills required in forestry throughout Canada. Students interpret and determine areas, coordinates, compass directions and distances from basemaps, topographic maps, and Forest Resource Inventory maps and apply this information in the field. Field inventories are conducted using equipment to determine a tree's age, basal area, diameter, height and location. Students learn to tally and complete a variety of survey sheets.

Prerequisite(s): none
Corerequisite(s):none

FOR7311 Dendrology

Focus is placed on the identification of local forest vegetation in the summer and winter conditions by leaf, twig, bark, log and form. Students study the Ontario Species Code. The environmental requirements of the major shrub and tree species are introduced, as well as tree taxonomy.

Prerequisite(s): none
Corerequisite(s):none

FOR7312 Ecology

Students examine the silvics of tree species, which deals with the growth and development of single trees and of forests, in their natural environments. Awareness is gained in the dynamics and succession of forest ecosystems and how they respond to changes in their landscape. Students gain a broader understanding of how trees function in a park, private woodlot, forested or wilderness setting.

Prerequisite(s): none
Corerequisite(s):none

FOR7313 Geographic Information Systems

Analysis of digitized spatial data is presented. Students practise basic skills in manipulating and presenting data with emphasis on applications in natural resources management. ArcGIS software package is used.

Prerequisite(s): none
Corerequisite(s):none

FOR7314 Soils and Landforms

The characteristics of common soils with emphasis on the physical, chemical and biological features are explored. Students spend a portion of their time conducting field and lab exercises to examine soil textures and profiles, and the correlation between landforms, soil types and species. Soil fertility, conservation and management are examined.

Prerequisite(s): none
Corerequisite(s):none

FOR7316 Wildlife

Students learn to identify various species of wildlife. Special emphasis is placed on the

identification and management of forest hawk habitat and species at risk. The management of fur bear and ungulate populations and its habitat are covered. Field surveys are conducted to assess wildlife habitat. Guidelines for the protection of wildlife habitat are examined. Field exercises are conducted to install buffers that protect wildlife habitat from forest operations. Other topics include radio telemetry.

Prerequisite(s): none
Corerequisite(s):none

FOR7317 Remote Sensing

Students are introduced to remote sensing using historical and modern forest imaging techniques such as LiDAR, Multispectral and Landsat. Focus is placed on interpretation of local digital Forest Resource Inventories. Students develop interpretation skills for identifying tree species, landforms, natural features and man-made features by applying their ground based knowledge to imagery products. Field exercises allow students to use remote sensing products to navigate in the forest and to conduct ground-truth exercises.

Prerequisite(s): none
Corerequisite(s):none

FOR7321 Mensuration

Students determine the growth and yield of trees and forest stands. Emphasis is placed on methods and techniques of various forest inventories, compiling tallies, analysis of data and auditing of work. Students learn about the essential parts of a contract and appreciate how a bid is conducted.

Prerequisite(s): none
Corerequisite(s):none

FOR7322 Forest Health

Focus is on the identification and management of diseases and insects that affect forest trees. Trees are graded for their potential as growing stock. Tree cavities are also studied. Several field trips are used to place special emphasis on the study of tree defects for selection tree marking. Logging techniques to minimize the damage to residual trees are also discussed.

Prerequisite(s): none
Corerequisite(s):none

FOR7324 Silviculture

Students study silviculture systems, site preparation, reforestation, tending, thinning and vegetation control. Emphasis is placed on a good understanding of the selection and shelterwood silviculture system so students can apply their knowledge in the tree marking course. Students learn to make recommendations concerning silvicultural treatments to contribute to the development of forest operations prescriptions. Several field exercises help students comprehend the course material. Examples of field activities include: brushsaw operations, stand analysis of tolerant hardwood forest, tree planting, inspection of areas harvested with the shelterwood system.

Prerequisite(s): none
Corerequisite(s):none

FOR7325 Harvesting

Regulations, licenses, equipment, methods, processes, and layouts employed in different harvesting systems are explored. Careful logging and compliance monitoring are studied in detail. The planning, scheduling and costing of operations are practised. Students learn the basic entrepreneurial skills for logging operations.

Prerequisite(s): none

Corerequisite(s):none

FOR7327 Fire Management

Students learn the organizational structure and practices used to control forest fires. Initial attack procedures are studied. The use of prescribed fire as a forest management tool is explored. Students gain an understanding of the Canadian Forest Fire Danger Rating System. Forest industry involvement to assess fire danger and perform compliance inspections of fire equipment is also covered. Field exercises involving the use of fire pumps and hose, enhance student learning. A modest testing fee is charged for those students attempting the SP102 Forest Industry Fire Certification. Depending on the level of student interest, the SP100 Forest Fire Training is also offered for an additional fee and time commitment.

Prerequisite(s): none
Corerequisite(s):none

FOR7331 Land Stewardship

Best management practices of natural resources on privately owned lands are highlighted. Students examine strategies to maintain or enhance natural environments and to remediate disturbed lands. Non-timber forest products are explored. The Managed Forest Tax Incentive Program is examined and applied. Students gain an appreciation for volunteerism.

Prerequisite(s): none
Corerequisite(s):none

FOR7333 Forest Access

The proper locating of various types of forest access roads and trails is considered. Bridge and culvert sizing, installation and soil erosion control are assessed. Regulatory and aesthetic requirements are applied along with the scheduling and costing of access routes. Compliance monitoring is studied and conducted in the field.

Prerequisite(s): none
Corerequisite(s):none

FOR7334 Forest Management

Students apply knowledge from previous courses to the realistic preparation of parts of a sustainable Forest Management Plan, and also complete part of an Annual Work Schedule. Provincial statutes, regulations, policies and operational planning are examined.

Prerequisite(s): none
Corerequisite(s):none

FOR7335 Ecological Land Classification

Standardized and consistent ecosystem inventory is needed by resource managers and planners. Students identify, describe and name Ontario ecosystems. The Canadian Ecological Land Classifcation system is followed. Inventory methodology abides by the Ontario Forest Resources Inventory calibration plot specifications. Field trips include visits to local Ontario ecosystems.

Prerequisite(s): none
Corerequisite(s):none

FOR7337 Tree Marking

The knowledge gained from previous and concurrent courses is brought to the practical application of tree marking. The student gains field experience and skills to mark trees under different silvicultural systems. Students learn the standards of the Provincial Tree Marking Certification program.

Prerequisite(s): none
Corerequisite(s):none

FOR7339 Certifications

Students have the opportunity to gain a minimum of ten certifications in specialties that they choose from a selection that is offered. Some examples are Fire Fighting, Chainsaw Operators, Tree Marking, Pesticide, Safe Boating, Erosion and Sediment Control, Aircraft Safety, Ministry of Natural Resources and Forestry (MNRF) Radio Operator, Culvert Installation, Tree Planting, Night Navigation, Prospectors and Workplace Hazardous Materials Information System (WHMIS).

Prerequisite(s): none
Corerequisite(s):none

FOR7340 Arboriculture

Students are introduced to the care of trees within an urban and urban-interface environment. Students practise using the different tools for this discipline as well as considerations of planting trees in an urban setting. Urban tree hazard management is undertaken.

Prerequisite(s): none
Corerequisite(s):none

FOR7346 Advanced Techniques

Global positioning systems are a critical tool for data collection and navigation in forestry. Using a combination of field exercises and self-directed projects, students explore the science and technology of global positioning systems. Students collect field information with various GPS units and download the information into GIS software to produce finished mapping projects. Examples of current related technology are ArcPad, ArcGIS, DNR Garmin software and DRAPE imagery.

Prerequisite(s): none
Corerequisite(s):none

FOR7347 Freshwater Environments

The physical, chemical and biological characteristics of freshwater environments are presented. Students specifically gain an understanding of the ecological importance of lakes, rivers, streams and wetlands. The relationships between forested and aquatic environments are explored. Several field trips are intended to familiarize students with freshwater systems and to provide practical training in an array of aquatic sampling techniques. Protocols for collecting, identifying, analyzing, storing and transporting aquatic samples are practised.

Prerequisite(s): none
Corerequisite(s):none

FOR7348 Silvicultural Surveys

Surveys, to verify the success of silvicultural operations, are essential to ensure forest sustainability. Focusing on the performance of regeneration assessments, students are given the opportunity to become proficient with the field procedures required. Planning of a regeneration assessment, the statistical analysis of the results, and development of treatment options are studied. An overview of forest herbicides is covered. Students conduct tree plant assessments and/or site preparation assessments. Results of these surveys are analyzed and their compliance and success are discussed.

Prerequisite(s): none
Corerequisite(s):none

FOR7351 Parks Operation

Students are introduced to a number of major park systems and the agencies that operate and

manage them in Ontario. Students gain knowledge in park policy and procedure, operations management, customer service, human relations and enforcement. Students are prepared for possible seasonal and full-time employment through coverage of traditional park positions. Students are required to do a number of online government certificates which are available during this course.

Prerequisite(s): none
Corerequisite(s):none

FOR7352 Field Placement

Students are required to complete a two-week, forestry-related field placement. This provides students with an opportunity to network with potential employers and to gain workplace knowledge and experience. Finding and securing an approved fieldwork opportunity is a student responsibility. Your faculty and field work supervisor/coordinator have many contacts in industry and where feasible will assist you in finding an approved field placement but do not guarantee one will be arranged on your behalf. Students are required to hold proof of certain training prior to the placement, such as Standard First Aid and CPR, WHMIS, and Worker Health and Safety Awareness. A list of past placement locations and contacts are provided. Examples are: forest industry companies and contractors (tree marking, tree planting supervision, and regeneration assessment), government (forest compliance, forest fire fighting, provincial parks) or arborists.

Prerequisite(s): none
Corerequisite(s):none

GED1108 General Education Elective

Students choose one course, from a group of general education electives, which meets one of the following five theme requirements: Arts in Society, Civic Life, Social and Cultural Understanding, Personal Understanding, and Science and Technology.

Prerequisite(s): none
Corerequisite(s):none