Heritage Carpentry and Joinery

Ontario College Diploma

2 Years

Perth Campus

Our Program

A program that rises above - Pursue a career restoring the past for future generations.

The two-year Heritage Carpentry and Joinery Ontario College Diploma program provides you with skills and knowledge related to the preservation, renovation and restoration of historical architecture. Through theoretical and hands-on learning, you study various topics, including:

- traditional joinery
- timber framing
- log building
- carpentry techniques
- architectural millwork
- staircasing
- window and door repair

Absorb the traditions of old world craftsmanship through both theory and practice. Experience more than 950 hours of hands-on learning during the program. You also have the opportunity to participate in a one-week work placement to practice your skills in a real-world environment.

You graduate with skills that set you apart from graduates of other carpentry programs. Algonquin College’s program places an emphasis on wood as a material and the role of both buildings and their architectural components. You construct buildings and building components from locally-harvested and market-sourced lumber and timber. The crafting of these projects from beginning to end provides an engaging and satisfying educational experience.

Upon graduation, you are ready to work in heritage carpentry, and in the high-end custom carpentry and millwork industries. Opportunities are available in both private and public sectors.

Some graduates may prefer freelance work, while others will take positions in commercial or residential carpentry or millwork companies, or follow the traditional apprenticeship route.

SUCCESS FACTORS

This program is well-suited for students who:

- Are passionate about craftsmanship.
- Have a desire to work with their hands.
- Like to problem solve.
- Are self-motivated, inquisitive, creative and ambitious.
- Have an appreciation for wood and built heritage and architecture.

Employment
Graduates are prepared to produce the high-quality work demanded in the growing field of Heritage Carpentry, as well as the custom carpentry and millwork industries. Opportunities are available in both private and public sectors. Some graduates may prefer freelance work while others will take positions in commercial or residential carpentry or millworking companies. Those who decide to follow a traditional apprenticeship route find themselves in an advantageous position as a graduate due to the unique foundation of skills and knowledge acquired.

**Learning Outcomes**

The graduate has reliably demonstrated the ability to:

- Develop and use strategies for ongoing professional development to remain current with industry changes, enhance work performance and explore career opportunities.
- Comply with health and safety practices and procedures in accordance with current legislation and regulations.
- Apply conservation techniques in accordance with the Ontario and National Building Codes, and in adherence to the Standards and Guidelines for the Conservation of Historic Places in Canada.
- Communicate and collaborate with diverse clients, supervisors, coworkers and tradespersons to complete projects on time and to maintain effective working relationships.
- Solve problems related to the implementation of built heritage, joinery and millwork artifacts and custom carpentry projects by applying the principles of basic technical mathematics and building design.
- Research, select, maintain and safely use hand tools, power tools and materials when performing traditional and contemporary carpentry, joinery and millwork craft.
- Research and record architectural elements to support and communicate accurate and appropriate historical representations of built heritage.
- Monitor the progression of built heritage, custom carpentry and millwork projects by applying basic principles and strategies of project management and conservation.
- Apply basic business principles and strategies to the operation of a building construction and/or renovation enterprise.
- Perform duties using specialized skillset related to carpentry and joinery in the fields of heritage conservation, high quality residential building and timber frame and log construction.
- 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**

<table>
<thead>
<tr>
<th>Level: 01</th>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARC9005</td>
<td>Canadian Architectural Conservation</td>
<td>42.0</td>
</tr>
<tr>
<td>CON9111</td>
<td>Carpentry I: Foundations, Floors, Walls and Basic Roofs</td>
<td>84.0</td>
</tr>
<tr>
<td>DRA9110</td>
<td>Drafting I: Hand Drafting Fundamentals for Carpentry and Joinery</td>
<td>16.0</td>
</tr>
<tr>
<td>DRA9111</td>
<td>Drafting II: Introduction to Computer Modelling</td>
<td>16.0</td>
</tr>
<tr>
<td>ENL9212</td>
<td>Communications I</td>
<td>42.0</td>
</tr>
<tr>
<td>MAT9111</td>
<td>Math II: Trade Calculations for Carpentry and Joinery</td>
<td>16.0</td>
</tr>
<tr>
<td>MAT9115</td>
<td>Math I: Measurements for Carpentry and Joinery</td>
<td>8.0</td>
</tr>
<tr>
<td>WOO9254</td>
<td>Joinery I: Fundamentals</td>
<td>105.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Level: 02</th>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DRA9221</td>
<td>Drafting III: Blueprint Reading and Estimating</td>
<td>8.0</td>
</tr>
<tr>
<td>MAT9223</td>
<td>Math III: Geometry and Shop Layout</td>
<td>10.0</td>
</tr>
<tr>
<td>WOO9210</td>
<td>Carpentry II: Roofs and Finishes</td>
<td>161.0</td>
</tr>
</tbody>
</table>
Heritage Carpentry and Joinery

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOO9223</td>
<td>Wood</td>
<td>10.0</td>
</tr>
<tr>
<td>WOO9226</td>
<td>Joinery II: Architectural Millwork</td>
<td>84.0</td>
</tr>
</tbody>
</table>

Choose one from equivalencies:

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GED0530</td>
<td>42.0</td>
</tr>
</tbody>
</table>

**Level: 03**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSC9100 Housing, Energy and the Environment</td>
<td>42.0</td>
</tr>
<tr>
<td>BSC9300 Conservation Methods I: Windows</td>
<td>42.0</td>
</tr>
<tr>
<td>ENL9202 Communications II</td>
<td>42.0</td>
</tr>
<tr>
<td>WOO9303 Traditional Carpentry I: Timber Framing</td>
<td>70.0</td>
</tr>
<tr>
<td>WOO9304 Joinery III: Traditional Windows</td>
<td>70.0</td>
</tr>
<tr>
<td>WOO9307 Joinery IV: Traditional Doors</td>
<td>56.0</td>
</tr>
</tbody>
</table>

**Level: 04**

<table>
<thead>
<tr>
<th>Courses</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSC9400 Conservation Methods II: Buildings Carpentry and Conservation Planning</td>
<td>60.0</td>
</tr>
<tr>
<td>LFS9441 Site Work</td>
<td>20.0</td>
</tr>
<tr>
<td>WOO9224 Joinery V: Traditional Staircasing</td>
<td>70.0</td>
</tr>
<tr>
<td>WOO9400 Joinery VI: Ornamental Millwork</td>
<td>58.0</td>
</tr>
<tr>
<td>WOO9401 Culminating Architectural Millwork Project</td>
<td>72.0</td>
</tr>
<tr>
<td>WOO9402 Traditional Carpentry II: Log Building</td>
<td>48.0</td>
</tr>
</tbody>
</table>

**Fees for the 2019/2020 Academic Year**

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at [https://www.algonquincollege.com/fee-estimator](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](https://www.algonquincollege.com/ro).

Fees are subject to change.

Additional program related expenses include:

Books and academic supplies cost approximately $1,000 in the first year and $400 in the second year. In addition, students are required to purchase trade-specific personal protective equipment and tools at a cost of $800-$1,500 in the first year and $300-$500 in the second year. Students are advised not to purchase tools before attending class. Students are required to have safety footwear and eye and ear protection on the first day of classes.

**Admission Requirements for the 2020/2021 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 12 (MAP4C or equivalent).
- International applicants must provide proof of the subject specific requirements noted above.
• International applicants must provide proof of the subject-specific requirements noted above along with proof of either: (IELTS / TOEFL) 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.

• Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency.

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.

**Admission Requirements for 2019/2020 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 12 (MAP4C or equivalent).

• International applicants must provide proof of the subject-specific requirements noted above along with proof of either: (IELTS / TOEFL) 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.

• Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency.

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.

**Application Information**

**HERITAGE CARPENTRY AND JOINERY**

Program Code 0530X01FPT

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 admission 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 Heritage Institute
7 Craig Street
Perth, ON K7H 1X7
Local: 613-267-2859
Toll-free: 1-800-565-4723
TTY: 1-866-620-3845
Fax: 613-267-3950

https://www.algonquincollege.com/perth

Additional Information

Programs at Algonquin College are Bring Your Own Device (BYOD). To see the BYOD requirements for your program, please visit: https://www7.algonquincollege.com/byod/.

Part-time students may be considered if space is available.

The Heritage Carpentry and Joinery program is a physically demanding program of study. Students can expect to spend extended blocks of time in both shop and outdoor environments with controlled exposure to noise and dust.

For more information about the program, please contact Jack Hollinger, Coordinator, at 613-267-2859 ext. 5639 or mailto:hollinj@algonquincollege.com.

Course Descriptions

ARC9005 Canadian Architectural Conservation
Preserving our heritage resources is a sign of community pride and environmental responsibility. Protecting heritage buildings requires understanding of their histories and the principles of preservation, restoration and rehabilitation shared by the conservation community. Students explore building styles and traditional building techniques as they have evolved across the Canadian landscape, using historical documents, case studies and field trips to local built heritage sites.

Prerequisite(s): none
Corequisite(s):none

BSC9100 Housing, Energy and the Environment
Students examine the impact of the construction/historic conservation industry on the environment. This includes a study of the principles and techniques of new house construction, energy-efficiency, appropriate energy conservation methods for historic buildings, the improvement of indoor air quality and the selection of environmentally-responsible construction products and practices.

Prerequisite(s): none
Corequisite(s):none

BSC9300 Conservation Methods I: Windows
Students perform hands-on restoration techniques to repair traditional wooden windows. Reproduction and heritage windows are glazed and made energy efficient using modern and traditional materials. Students learn why not replacing old windows is one of the most environmentally sound choices owners of heritage buildings can make.

Prerequisite(s): WOO9210 and WOO9226
Corequisite(s):none
BSC9400 Conservation Methods II: Buildings Carpentry and Conservation Planning

Students learn about restoration and repair techniques for buildings and building elements. By exploring a variety of building deficiencies typically seen in historic buildings, and investigating their repair strategies, students are exposed to traditional and contemporary solutions to problems. Conservation standards are explored and students perform hands-on restoration techniques covering many facets of conservation work. Students learn about inspections, permits, site documents and contracts. Knowledge learned is used to develop a plan for a conservation project.

Prerequisite(s): BSC9300
Corerequisite(s): none

CON9111 Carpentry I: Foundations, Floors, Walls and Basic Roofs

General carpentry and homebuilding skills are introduced through both practical and theoretical methods. Students focus on the skills and knowledge necessary to lay out and construct a foundation and floor system including differential levelling, location of building hubs, batterboards and footing formwork, foundation walls, columns, beams, joists and subfloors. An investigation into the framing of wall and basic roof systems includes wood stud framing, lintels, openings, sheathing, bracing and common rafters. Projects are constructed according to plans, schedules and the Ontario and National Building Codes.

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

DRA9110 Drafting I: Hand Drafting Fundamentals for Carpentry and Joinery

Drafted prints, plans and shop drawings are essential elements for communication in the building industry. Students acquire competency in the basics of traditional drafting. Topics of study include freehand sketching, drawing instruments, lettering and isometric, oblique and orthographic drawings.

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

DRA9111 Drafting II: Introduction to Computer Modelling

Technology has transformed the way in which carpenters and joiners can locate and present critical measurements and details. An introduction to computer-assisted modeling reinforces principles learned in Drafting I and expand upon them by allowing students to explore basic 3D digital models.

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

DRA9221 Drafting III: Blueprint Reading and Estimating

Students read and interpret architectural plans, shop drawings and specifications. Activities include retrieving information, verifying material sizes and grades and putting together material estimates for both construction and shop projects.

Prerequisite(s): DRA9111
Corerequisite(s): none

ENL9202 Communications II

Students write instructions and write for publication, create relevant job-search correspondence and career portfolios, writing various informal reports to suit a specified purpose, and write and present a formal research report on a program related topic.

Prerequisite(s): none
Corerequisite(s): none
ENL9212 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

GED0530 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

LFS9441 Site Work

Students are introduced to the practicalities of working on a conservation project. Working on an actual heritage building site challenges students' skills and prepares them for work in this rewarding field.

Prerequisite(s): BSC9300 and WOO9210 and WOO9226
Corerequisite(s): none

MAT9111 Math II: Trade Calculations for Carpentry and Joinery

Focus is placed on fundamental calculations necessary in carpentry and joinery. Applications include the principles of ratio and proportion and right angle trigonometry in roof and staircase construction. Problem solving skills used daily by practicing carpenters and joiners are stressed.

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

MAT9115 Math I: Measurements for Carpentry and Joinery

Accurate measurement is paramount in carpentry and joinery. Imperial measurement is the norm in North America, and fractions are stressed for linear measure. Students study fundamentals of perimeter, area and volume measure with carpentry specific applications stressed.

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

MAT9223 Math III: Geometry and Shop Layout

With emphasis on practical application, students are introduced to layout using geometric principles. An exploration of linear constructions, geometric shapes, the Golden mean and classical moulding profiles are explored. These geometric constructions have been used by tradespeople for centuries and are the basis of all of our built heritage.

Prerequisite(s): MAT9115
Corerequisite(s): none

WOO9210 Carpentry II: Roofs and Finishes

The study of wood-framed house construction continues with an investigation into the framing
Heritage Carpentry and Joinery

of more complex roof systems. Traditional hip, valley and jack rafter layouts are thoroughly explored. The layout and installation of siding, roof finishes, windows, doors and exterior trim are practiced and discussed. Projects started in Carpentry I are completed.

Prerequisite(s): CON9111 and MAT9111 and MAT9115
Corerequisite(s):none

WOO9223 Wood

Wood has been the primary medium of carpenters and joiners for millennia. Wood qualities such as grain orientation, workability, colour, moisture resistance and movement are discussed at a practical and cellular level. Students gain an understanding of wood as a material, how to use it effectively and how it has been used in the past.

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

WOO9224 Joinery V: Traditional Staircasing

Designing and building staircases is often considered the pinnacle of a carpenter's craft. Students learn how to build a comfortable, safe building code compliant staircase. Design, stringer layout, balustrade assembly and staircasing joinery are investigated in detail.

Prerequisite(s): WOO9226
Corerequisite(s):none

WOO9226 Joinery II: Architectural Millwork

Millwork provides the finishing touches to a building and helps to define its character. Techniques are introduced for turning and bending wood. Students discuss and practise production techniques for fabricating and installing casings, baseboards, mouldings and other millwork pieces.

Prerequisite(s): MAT9115 and WOO9254
Corerequisite(s):none

WOO9254 Joinery I: Fundamentals

A comprehensive introduction to the use, selection and maintenance of hand tools is provided. Students research and compare woodworking techniques, and expand on their hand drafting fundamentals by reading, interpreting and developing plans. Students also develop procedures for a variety of projects and learn the safe and efficient use of both power hand tools and stationary machinery. Techniques and methods taught in this course provide a sound base on which to build a future in joinery and woodworking.

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

WOO9303 Traditional Carpentry I: Timber Framing

An exploration of the time-honoured layout principles and cutting techniques used in traditional and contemporary timber frames is explored. Students construct a timber frame building whilst acquiring theoretical and practical skills. Traditional joinery and materials are stressed. Inspections of barns from the 19th and early 20th centuries allow an opportunity for appreciation of the craft and an understanding of their longevity, as well as an introduction to restoration and repair techniques.

Prerequisite(s): DRA9221 and MAT9223 and WOO9210
Corerequisite(s):none

WOO9304 Joinery III: Traditional Windows

Windows are the single most recognizable character defining element of heritage buildings.
Student identify types and styles of windows and then follow comprehensive organizational procedures whilst constructing a traditional window. The theory and practice of the production of traditional windows is covered extensively.

Prerequisite(s): DRA9221 and WOO9226
Corequisite(s): none

WOO9307 Joinery IV: Traditional Doors

A traditionally built solid wood door is a showcase of the joiner’s craft. Students investigate the evolution of doors and door styles as well as specific types of traditional doors. Students evaluate joinery construction techniques and use them to practice various door joints and scaled doors.

Prerequisite(s): WOO9226
Corequisite(s): none

WOO9400 Joinery VI: Ornamental Millwork

An investigation of many of the principles and techniques used by restoration carpenters are discussed. Students apply the rules of joinery and design are applied through the layout, design and construction of traditional solid wood fireplace mantels.

Prerequisite(s): MAT9223 and WOO9226
Corequisite(s): none

WOO9401 Culminating Architectural Millwork Project

Topics of investigation include both interior and exterior ornamental features. Students combine theoretical and practical skills to complete a culminating architectural project that challenges them to perform at a high level of skill.

Prerequisite(s): WOO9226 and WOO9400
Corequisite(s): none

WOO9402 Traditional Carpentry II: Log Building

The tools, techniques and materials used to build heritage log buildings are explored in theory and in practice. Heritage log buildings are investigated to explore traditional material preparation, joinery techniques and foundation strategies. Students construct a hand-hewn, dovetailed log building using traditional methods.

Prerequisite(s): WOO9303
Corequisite(s): none