Fleming College

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Course Outline

Course Title:	Estimating, Calculations and Layout I		
Course Number:	CNST3	**Approval Date:**	2018/8/8
Course Hours:	32 hours	**Academic Year:**	2018
Academic School:	School of Trades & Technology		

Faculty:	Scott Fleming - scott.fleming@flemingcollege.ca
Program Co-ordinator or Equivalent:	Scott Fleming - scott.fleming@flemingcollege.ca
Dean (or Chair):	Jason Jackson - jason.jackson@flemingcollege.ca

Course Description

This course is split into two sections, each of 16 hours duration. Section 1 will review the basic mathematical principles as required by a general carpenter. Topics covered will include fractions, decimals, the metric system, mensuration, ratio & proportion, Pythagorean Theorem and trade related estimating problems. Section 2 will introduce the student to the basic principle of geometry as they apply to construction layout. Topics covered will include line-work, angles & triangles, quadrilaterals, circles, polygons, the ellipse, ratio & proportion and arches.

Prerequisites: None.

Corequisites: None.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Add, subtract, multiply, and divide whole numbers, exponents, square-roots and use order of operations when applying these operations to trade related problems.
2. Define proper and improper fractions, mixed numbers, least common denominator, and brackets, and add, subtract, multiply, and divide fractions in imperial measure applications.
3. Add, subtract, multiply, and divide decimals in metric applications, using the concepts of rounding decimals, conversion of decimals to fractions and vice versa, and the use of decimal equivalent tables.

4. State and apply the Pythagorean Theorem to right triangles using the operation of squaring numbers and finding the square root of numbers, both by estimation and calculation.
5. Explain the concept of area and square units. Calculate the areas of common and complex shapes in the trade.
6. Explain the concept of volume and cubic units. Calculate the volumes of common and complex objects.
7. Explain the concepts of similar triangles and ratio & proportion as applied to carpentry.
8. Calculate simple and compound interest and percentage increase and decrease.
9. Identify and apply basic geometric procedures to: - Straight lines - Angles - Triangles - Quadrilaterals - Circles - Ellipses - Polygons (hexagons, octagons, etc.) - Arches

Vocational Outcomes: This course supports the standards and practices defined by the Apprenticeship Curriculum Standard, General Carpenter, as sanctioned by the Ontario College of Trades (OCOT).

Learning outcomes are extracted from OCOT General Carpenter Curriculum Standards 2014. Reportable Subject 3103.

General Education Goal Area: Inter Provincial (Red Seal) Certificate of Qualification.

Prerequisites: Each candidate must be indentured to a qualified contractor or union, be registered with the Ministry of Training, Colleges and University as an apprentice and a member in good standing with the Ontario College of Trades.

Passing grade of 60% is required.

Generic Skills Outcomes:
To apply the mathematical skills and geometric layout solutions gained in this course, to problems encountered at the construction site.

Learning Resources

Required workbook: Fleming 2017

Required text:
Construction Geometry
Author: Brian Walmsley
Pub. Centennial College Press Practical

Recommended text:
Problems in Mathematics for carpenters
Author: Harry C. Huth
6th Edition. ISBN # 0-8273-6987-5
Pub. Delmar

Students will require:
A calculator - with trigonometric functions.
A compass, set square and architectural scales (Metric & Imperial)

Faculty members will provide some handout materials.

Assessment Summary

Assessment Task	Percentage
Quizzes	33%
Assignments	34%
Tests	33%

Student Success: Policies and Procedures

Mutually, faculty and learners will support and adhere to college Academic Regulations, and Student Rights and Responsibilities. The following policies and guidelines have been developed to support the learning process.

Please click on the link for information about:

- Academic Integrity (2-201A)
  (https://department.flemingcollege.ca/hr/attachment/7750/download)
- Accessibility for Persons with Disabilities (3-341)
  (https://department.flemingcollege.ca/hr/attachment/5619/download)
- Grading and Academic Standing (2-201C)
  (https://department.flemingcollege.ca/hr/attachment/7752/download)
- Guidelines for Professional Practice: Students and Faculty
  (https://flemingcollege.ca/PDF/guidelines-for-professional-practice-students-faculty.pdf)
- Student Rights and Responsibilities (5-506)
  (https://department.flemingcollege.ca/hr/attachment/269/download)

Alternate accessible formats of learning resources and materials will be provided, on request.

Program Standards

The Ministry of Training, Colleges and Universities oversees the development and the review of standards for programs of instruction. Each college is required to ensure that its programs and program delivery are consistent with these standards, and must assist students to achieve these essential outcomes.

This course contributes to Program Standards as defined by the Ministry of Training, Colleges and Universities (MTCU). Program standards apply to all similar programs of instruction offered by colleges across the province. Each program standard for a postsecondary program includes the following elements:

- **Vocational standards** (the vocationally specific learning outcomes which apply to the program of instruction in question);
- **Essential employability skills** (the essential employability skills learning outcomes which apply to all programs of instruction); and
- **General education requirement** (the requirement for general education in postsecondary programs of instruction that contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience; and, the society in which they live and work).

Collectively, these elements outline the essential skills and knowledge that a student must reliably demonstrate in order to graduate from the program. For further information on the standards for your program, follow the MTCU link (www.tcu.gov.on.ca/pepg/audiences/colleges/progstan/)

Detail Plan

Term: 2018 Fall **Session Code:** DC
Class Section: 60

Faculty: Daryl Leckie - Daryl.Leckie@flemingcollege.ca
Program Co-ordinator or Equivalent: Scott Fleming - scott.fleming@flemingcollege.ca
Dean (or Chair): Jason Jackson - jason.jackson@flemingcollege.ca

Learning Plan

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
1 or 2.5 hours	Introduction to course Whole numbers Units 1 4 Perimeter - Unit 18	1	Section 1: Assignment #1
2 or 2.5 hours	Fractions Proper/improper mixed numbers, LCD - Units 5 9.	2	Assignment #2
3 or 2.5 hours	Conversion of fractions to decimals to fractions. Decimal equivalent tables. Decimals - Units 14, Appendix	3	Assignment #3
4 or 2.5 hours	Review material and assignments to date. Test		Test #1

Wks/Hrs Units	Topics, Resources, Learning, Activities	Learning Outcomes	Assessment
5 or 2.5 hours	Powers & Roots Unit 29 Pythagorean Theorem Unit 30 Ratio & Proportion	4	Assignment #4
6 or 2.5 hours	Area measure Units 20 24	5	Assignment #5
7 or 2.5 hours	Volume Measure Units 25	6	Assignment #6
8	Review and test		Test #2
9	Line-work	7.1	Assignment #7
10	Angles and triangles	7.1, 7.2	Assignment #8
11	Polygons - Hexagon & Octagon, Circles	7.1, 7.3,7.4, 7.6	Assignment #9
12	Review material and assignments to date. Test		Test #3
13	Polygons - Pentagon & heptagon	7.1, 7.6	Assignment #10
14	Quadrilaterals and the Ellipse	7.1, 7.7	Assignment #11
15	Ratio & Proportion	7.1, 7.8, 7.8	Assignment #12
16	Review and test		Test #4

Assessment Requirements

Assessment Task	Date/Weeks	Course Learning Outcome	Percentage
Assignments - 12 @ 5% each			60%
Test - 4 @ 10% each			40%

Prior Learning and Assessment and Recognition (PLAR)

PLAR uses tools to help learners reflect on, identify, articulate, and demonstrate past learning which has been acquired through study, work and other life experiences and which is not recognized through formal transfer of credit mechanisms. PLAR options include authentic assessment activities designed by faculty that may include challenge exams, portfolio presentations, interviews, and written assignments. Learners may also be encouraged and supported to design an individual documentation package that would meet the learning requirements of the course. Any student who wishes to have any prior learning acquired through life and work experience assessed, so as to translate it into a college credit, may initiate the process by applying through the Registrar's office. For more information

please click on the following link: http://flemingcollege.ca/admissions/prior-learning-assessment-and-recognition

Course Specific Policies and Procedures

It is the responsibility of the student to retain this course outline for future reference. Course outlines may be required to support applications for advanced standing and credit transfer to other educational institutions, portfolio development, PLAR and accreditation with professional associations.

ACADEMIC RESPONSIBILITIES

Mutually, faculty and learners will support and adhere to college Academic Regulations and Student Rights and Responsibilities. In addition, the following guidelines have been developed to support the learning process.

1. To gain the most possible benefit from this skill developing course, students need to attend classes. Learning takes place when you become engaged in the learning process. Your instructor will be recording attendance data and will report absences, late arrivals and early departures to your program co-ordinator.

2. All tests and lab assignments have scheduled due/completion dates. Meeting these due dates is key to your success in this course: your instructor's feedback will add to your learning.

3. Therefore, you must write all tests with the class on the tests' assigned dates. As well, you must complete all lab assignments by the scheduled due date during the schedule lab time.

4. You will receive a grade of zero for any test not written or lab assignment not completed unless you have made arrangements with your instructor **PRIOR TO** the due date in question.

5. Your instructor will consider a makeup for missed assignments or tests for valid reasons only; for example, documented illness or extenuating personal circumstances. These situations will be discussed on an individual basis.

6. You, the student, are responsible for making these arrangements; you're learning and success in this course is a shared goal.

7. Final grades in this course are assigned based on the level of achievement that corresponds to the assessment components as cited in the course outline. It is important to note that faculty member(s) will not offer additional evaluation activities (**NO CREDIT RECOVERY**) beyond those cited in the course outline.

LATE ASSIGNMENT POLICY

You must submit/present all written/oral assignments on their assigned dates unless you make specific arrangements in writing/voice mail/E-mail with your professor at least 24 hours prior to the due date in question. In the case of any emergency, make arrangements (in writing, if necessary) immediately upon your return.

Your professor will make special arrangements for valid reasons only. In the case of illness, you may be required to provide a medical note. Other extenuating circumstances will be discussed on an individual basis.

A penalty of 10% per day will be applied to an assignment not submitted by the original or extended due date. An assignment more than three days late will receive a grade of zero ("0"). Weekends are counted as two days. No assignment will be accepted after the last day of classes without prior arrangement with your professor.

ACADEMIC INTEGRITY

Fleming College opposes any form of academic dishonesty, such as plagiarism, submission of work for which credit has already been received; cheating, impersonation; falsification or fabrication of data; the acquisition of confidential material, e.g., examination papers; misrepresentation of facts; altering transcripts or other official documents. Please see Academic Regulations Policy for more information on Academic Integrity.