



**I. COURSE DESCRIPTION:**

Theory element for level one of the in-school portion of apprenticeship training for plumbers.

**II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:**

Upon successful completion of this course, the student will demonstrate the ability to:

1. Identify various types of piping materials and their use.  
Potential Elements of the Performance:
  - know the difference between different types of copper tube and their correct use as required by the applicable regulatory authorities
  - know the different types plastics and their correct use as required by the applicable regulatory authorities
  - select steel pipe for application as dictated by its manufacturing method
  - know various types of piping material and their application as required by code requirement or piping system component.
2. Properly design and size drain plans and elevation drawings.  
Potential Elements of the Performance:
  - select the proper pencils and set squares to clearly and neatly complete drain plans and stack elevations correctly.
  - follow oral and written instructions when completing drawings.
  - correctly size drains and vents as required by Part Seven of the Ontario Building Code.
3. Solve various trade related calculations using the required formulas and tables.  
Potential Elements of the Performance:
  - select and apply the correct formula to calculate center to center measurements for 45° offsets and 45° rolling offsets.
  - select and apply the correct formula to calculate the center to center measurements for 22.5° angles.
  - select and apply the correct formula to calculate allowances required for bending of pipe or tubing.
  - apply the correct tables or charts to obtain the end to end measurement which apply to various types of piping materials.
4. Identify and use the requirements of Part Seven of the Ontario Building Code pertaining to drainage systems.  
Potential Elements of the Performance:
  - select and apply the correct section, sub-section, clause, sentence or table as required to properly design and size plumbing drainage systems.

5. Identify and use the requirements of Part Seven of the Ontario Building Code pertaining to venting systems.  
Potential Elements of the Performance:  
 - select and apply the correct section, sub-section, clause, sentence or table as required to properly design and size plumbing venting systems.

### III. TOPICS:

1. Pipe materials
2. Drain plans and stack elevations
3. 45 degree offsets, latent and sensible heat, btu. calculations and temperature scale conversion
4. Combined drains, semi combined drains, sizing drains
5. Back vent, continuous waste and vent, dual vent, stack vent, wet vent, and vent stacks

### IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Basic plumbing workbook
- Part seven of the Ontario Building Code
- IPT's Pipe Trades Handbook

### V. EVALUATION PROCESS/GRADING SYSTEM:

The final grade for the course will be established from the average of seven possible weekly tests.

The following semester grades will be assigned to students:

<b>Grade</b>	<b><u>Definition</u></b>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	

U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

## VI. SPECIAL NOTES:

### Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

### Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

### Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

### Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

**VII. PRIOR LEARNING ASSESSMENT:**

Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

**VIII. ADVANCE CREDIT TRANSFER:**

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.