**Course Description:** An introductory course to pathways in the Transportation Cluster covering basic safety, applied math, measurement, hand tools, power tools, schematic reading, and communication and employability skills.

**Suggested Grade Level:** Grades 9 - 10

**Suggested Course Length:** Unit 2 (Handtools, Industrial Math & Measurement) – Approximately 4 weeks (50 minute periods/5 days a week) of a 1 semester course (.5 credit).

**Last Modified:** February 2018

**Suggested Scope & Sequence:**

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| **Unit 2** | **Handtools, Industrial Math & Measurement** | **Time** |
| Lesson 1 | Introduction to Handtools – Wrenches (Two Days) | 100 Minutes |
| Lesson 2 | Socket Wrenches | 50 Minutes |
| Lesson 3 | Screwdrivers | 50 Minutes |
| Lesson 4 | Pliers | 50 Minutes |
| Lesson 5 | Hammers & Punches | 50 Minutes |
| Basic Handtool Quiz | 50 Minutes |
| Lesson 6 | Measurement & Measuring Tools (Two Days) | 100 Minutes |
| Lesson 7 | Standard Vernier Calipers & Micrometers | 50 Minutes |
| Lesson 8 | Metric Vernier Calipers & Micrometers | 50 Minutes |
| Measurement Tool Quiz | 50 Minutes |
| Lesson 9  Ver8\_04\_17 | Other Measuring Tools | 50 Minutes |
| Lab Activities (Five Days) | 250 Minutes |
| Handtool , Industrial Math and Measurement Unit Test | 50 Minutes |

**Table of Contents**

**Unit 2 - Handtools, Industrial Math & Measurement**

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| **Unit 2 Lesson 1** | **Sequence of Files** | **File Name** |
| **Introduction to Handtools - Wrenches** | Lesson Plan | Handtool Lesson 1 Plan.docx |
| PowerPoint | Handtool Lesson 1.ppt |
| Student Worksheet | Handtool L1 Worksheet.doc |
| Worksheet Answer Key | Handtool L1 Worksheet(Key).doc |

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| **Unit 2 Lesson 2** | **Sequence of Files** | **File Name** |
| **Socket Wrenches** | Lesson Plan | Handtool Lesson 2 Plan.docx |
| PowerPoint | Handtool Lesson 2.ppt |
| Student Worksheet | Handtool L2 Worksheet.doc |
| Worksheet Answer Key | Handtool L2 Worksheet(Key).doc |

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| **Unit 2 Lesson 3** | **Sequence of Files** | **File Name** |
| **Screwdrivers** | Lesson Plan | Handtool Lesson 3 Plan.docx |
| PowerPoint | Handtool Lesson 3.ppt |
| Student Quiz | Handtool L3 Worksheet.doc |
| Quiz Answer Key | Handtool L3 Worksheet(Key).doc |

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| **Unit 2 Lesson 4** | **Sequence of Files** | **File Name** |
| **Pliers** | Lesson Plan | Handtool Lesson 4 Plan.docx |
| PowerPoint | Handtool Lesson 4.ppt |
| Student Worksheet | Handtool L4 Worksheet.doc |
| Worksheet Answer Key | Handtool L4 Worksheet(Key).doc |

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| **Unit 2 Lesson 5** | **Sequence of Files** | **File Name** |
| **Hammers & Punches** | Lesson Plan | Handtool Lesson 5 Plan.docx |
| PowerPoint | Handtool Lesson 5.ppt |
| Student Worksheet | Handtool L5 Worksheet.doc |
| Worksheet Answer Key | Handtool L5 Worksheet(Key).doc |
| Handtool Lessons Quiz | Basic Handtool Quiz.docx |
| Handtool Lessons Quiz Answer Key | Basic Handtool Quiz(Key).docx |

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| **Unit 2 Lesson 6** | **Sequence of Files** | **File Name** |
| **Measurement & Measuring Tools** | Lesson Plan | Handtool Lesson 6 Plan.docx |
| PowerPoint | Handtool Lesson 6.ppt |
| Student Worksheet | Handtool L6 Worksheet.doc |
| Worksheet Answer Key | Handtool L6 Worksheet(Key).doc |

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| **Lesson 7** | **Sequence of Files** | **File Name** |
| **Standard (Imperial) Vernier Calipers & Micrometers** | Lesson Plan | Handtool Lesson 7 Plan.docx |
| PowerPoint | Handtool Lesson 7.ppt |
| Student Worksheet | Handtool L7 Worksheet.doc |
| Worksheet Answer Key | Handtool L7 Worksheet(Key).doc |

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| **Unit 2 Lesson 8** | **Sequence of Files** | **File Name** |
| **Metric Vernier Calipers & Standard Micrometers** | Lesson Plan | Handtool Lesson 8 Plan.docx |
| PowerPoint | Handtool Lesson 8.ppt |
| Student Worksheet | Handtool L8 Worksheet.doc |
| Worksheet Answer Key | Handtool L8 Worksheet(Key).doc |
| Measurement Tool Quiz | Measurement Tool Quiz.docx |
| Measurement Tool Quiz Answer Key | Measurement Tool Quiz(Key).docx |

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| **Unit 2 Lesson 9** | **Sequence of Files** | **File Name** |
| **Other Measuring Tools** | Lesson Plan | Handtool Lesson 9 Plan.docx |
| PowerPoint | Handtool Lesson 9.ppt |
| Student Worksheet | Handtool L9 Worksheet.doc |
| Worksheet Answer Key | Handtool L9 Worksheet(Key).doc |
| Lab Activities | L9 Activity Lesson Plan.docx |
| Lab Activity Rotation Chart | L9 Activity Rotation .docx |
| Lab Activity Grade Sheet Template | L9 Activity Grade Sheet Template.docx |

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| **Unit 2 Tests** | **Sequence of Files** | **File Name** |
| **Handtool, Industrial Math & Measuring Tool** | Handtool, Industrial Math & Measuring Tool Unit Test | U2 Exam.docx |
| Handtool, Industrial Math & Measuring Tool Unit Test Key | U2 Exam(Key).docx |