

APPRENTICESHIP AND TRADES

pcc.edu/programs/apprenticeship/

CAREER AND PROGRAM DESCRIPTION

Portland Community College provides courses in accordance with the Apprenticeship and Training Laws for the State of Oregon. These courses present technical instruction for the trades and are intended to complement on-the-job skills for both men and women. Each apprentice able trade has a Joint Apprenticeship and Training Committee (JATC) which outlines the procedures to become a journey person. This outline usually consists of two to five years of supervised, on-the-job experience in various aspects of the trade in conjunction with PCC course work. The JATC committees outline the type of supportive courses needed to prepare students to become qualified journey persons in addition to working with related training courses.

Consult the Apprenticeship and Trades Department for assistance in program planning and transcript evaluation. It is recommended to have your graduation petition and transcript evaluation approved by an Apprenticeship and Trades Department advisor prior to filing your petition.

Students wanting to move into management, supervision, or small business management can transfer to Oregon Institute of Technology (OIT) with related-training credits toward a Bachelor of Science (BS) in Operations Management after earning an Apprenticeship AAS degree.

DEGREES AND CERTIFICATES OFFERED

ASSOCIATE OF APPLIED SCIENCE DEGREE

Construction Trades, General Apprenticeship
 Electrician Apprenticeship Technologies
 Industrial Mechanics and Maintenance Technology Apprenticeship

CERTIFICATE OF COMPLETION

Construction Trades, General Apprenticeship
 Electrician Apprenticeship Technologies
 Industrial Mechanics and Maintenance Technology Apprenticeship
 Limited Electrician Apprenticeship Technologies
 Manual Trades Apprenticeship
 Mechanical Maintenance Apprenticeship

CAREER PATHWAY CERTIFICATE

Apprenticeship and Trades: Pre-Trade Pathway
 Apprenticeship and Trades: Pre-Trades for Advanced Manufacturing

JOURNEY LEVEL LICENSE RENEWAL

PCC's Apprenticeship and Trades Department is an approved training agent for continuing education for journey level electrical license renewal through the State of Oregon Electrical Licensing Division.

PRE-APPRENTICESHIP

PCC provides Pre-Apprenticeship opportunities to students seeking careers in the trades or an apprenticeship. These courses prepare students to apply for an apprenticeship, meet the minimum entry qualifications, and possibly boost your application score. Women and minorities are encouraged to participate.

The Trades Preparation course covers construction trade topics, industry orientation, material handling, scaffolding, rigging, hand and power tool use, 30 hour OSHA safety certification, site visits and mock interviews. This course is approved by the Oregon Apprenticeship Council as an authorized Pre-Apprenticeship course.

The Exploring Trades and Apprenticeship course explores career opportunities within the Trades. It introduces resources for assisting students in identifying the skills needed to succeed in these fields. This class is only held periodically, please check with the department before registering.

Consult the Apprenticeship and Trades Department for assistance in program planning.

Academic Prerequisites

- None

Academic Requirements

- None

Non-Academic Prerequisites

- None

Non-Academic Requirements

- Students pursuing a designated and sponsored Oregon State Bureau of Labor and Industries occupation must meet entrance requirements for their chosen career.

CONSTRUCTION TRADES, GENERAL APPRENTICESHIP PATHWAY

Construction Trades, General Apprenticeship AAS Degree (p. 1)
 Construction Trades, General Apprenticeship Certificate (p. 1)
 Manual Trades Apprenticeship Certificate (p. 3)

CONSTRUCTION TRADES, GENERAL APPRENTICESHIP AAS DEGREE

The AAS degree total credit requirement depends upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee, however a minimum of 90 credits is required for all degrees. Math/computation competency is met through the courses in the program of study indicated with a § symbol. Students should consult with program advisors for course planning.

Code	Title	Credits
4000-8000 Hour BOLI-ATD Trades		
APR 162	Calculations for the Trades §	4
	College credit courses for Related-Training	16-75
	General Education: 4 courses	
	Credit for Prior Certification	0-22
	Approved Program Electives	0-41
	Total Credits	90-108

§ Course cannot be substituted for another course.

CONSTRUCTION TRADES, GENERAL APPRENTICESHIP CERTIFICATE

This certificate requires a minimum of 16 credits of related classroom training as well as 9 credits of related instruction. Embodied in this certificate are many state certifications. Both the total related training credits and the total related instruction credits depend upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee

6000-8000 Hour BOLI-ATD Trades: Asbestos Removal, Carpenter, Exterior/Interior Finisher, HVAC/R, Painter, Pile Driver, Plumber, Scaffold Erector, and Sheet Metal Worker

Code	Title	Credits
6000-8000 Hour BOLI-ATD Trades		
	College credit courses for Related-Training	16-99

Related Instruction ¹	9	WR 121H	Composition I: Honors (WR121H=WR121HZ) ^Z	4
Credit for Prior Certification	0			
Approved Program Electives	0	WR 122	Composition II (WR122=WR122Z) ^Z	4
Total Credits	25-108	WR 122H	Composition II: Honors (WR122H=WR122HZ) ^Z	4

1		WR 227	Technical Writing (WR227=WR227Z) ^Z	4
See related instruction list below for approved courses		Human Relations		

RELATED INSTRUCTION ¹

Code	Title	Credits		
To fulfill the related instruction requirement within a certificate students must pass courses from each category (computation, communication, human relations). The minimum requirement for a two-year certificate is 4 credits from each category and 16 credits total, the minimum requirement for a one-year certificate is 2 credits from each category and 8 credits total. No substitutions are allowed for related instruction. Consult the Apprenticeship and Trades Department for assistance in program planning. [§]				
Computation				
APR 162	Calculations for the Trades	4	MSD 107	Organizations & People
BA 111	Introduction to Accounting	3	MSD 115	Improving Work Relations
MTH 105	Math in Society (MTH105=MTH105Z) ^Z	4	MSD 117	Customer Relations
MTH 111	Precalculus I: Functions (MTH111=MTH111Z) ^Z	4	MSD 128	Crisis Intervention: Handling the Difficult Person
MTH 111H		4	MSD 151	Working with Difficult People
MTH 112	Precalculus II: Trigonometry (MTH112=MTH112Z) ^Z	4	MSD 161	
STAT 243	Elementary Statistics I (MTH/ STAT243=STAT243Z) ^Z	4	MSD 162	The Art of Anger Management
MTH 244	Statistics II	4	MSD 200	Organizations and Social Responsibility
MTH 251	Calculus I	4	PSY 101	Psychology and Human Relations
MTH 252	Calculus II	4	PSY 201A	Introduction to Psychology - Part 1
MTH 253	Calculus III	5	PSY 202A	Introduction to Psychology - Part 2
PHY 101	Force, Motion, and Energy	4	PSY 214	Introduction to Personality
PHY 201	General Physics	4	PSY 215	Human Development
Communication				
BA 205	Business Communication Using Technology	4	PSY 216	Social Psychology
COMM 100	Introduction to Communication (COMM100=COMM100Z) ^Z	4	PSY 222	Family & Intimate Relationships
COMM 111	Public Speaking (COMM111=COMM111Z) ^Z	4	PSY 231	Foundations of Human Sexuality
COMM 111H	Public Speaking: Honors (COMM111H=COMM111HZ) ^Z	4	PSY 232	Human Sexuality in Social Context
COMM 112	Argumentation, Advocacy, and Debate	4	PSY 236	Psychology of Adult Development and Aging
COMM 140	Introduction to Intercultural Communication	4	PSY 239	Introduction to Abnormal Psychology
COMM 218	Interpersonal Communication (COMM214=COMM218=COMM218Z) ^Z	4	PSY 240	Personal Awareness and Growth
MSD 105	Workplace Communication Skills	3	SOC 204	Introduction to Sociology
MSD 119A	Intercultural Communication	1	SOC 205	Social Change
MSD 138A	Male/Female Communication Differences	1	SOC 206	Social Problems
MSD 141A	The Time-Stress-Communication Triangle	1	SOC 213	Diversity in the United States
MSD 160A	Communication Styles	1	SOC 218	Sociology of Gender
MSD 175B	Direct Communication in the Workplace	1	SOC 221	Globalization and International Relations
MSD 176	Nonverbal Communication	1	SOC 232	Death and Dying: Culture and Issues
MSD 176A	Interpersonal Communication	1	WS 101	Women's Studies
WR 115	Introduction to College Composition	4	WS 201	Intercultural Women's Studies
WR 121	Composition I (WR121=WR121Z) ^Z	4	WS 202	Women, Activism and Social Change

§ Related Instruction details can be viewed here.

Z This course is part of Oregon Common Course Numbering. The following courses are equivalent:
 COMM 100 and COMM 100Z
 COMM 111 and COMM 111Z
 COMM 111H and COMM 111HZ
 COMM 214, COMM 218, and COMM 218Z
 MTH 105 and MTH 105Z
 MTH 111 and MTH 111Z
 MTH 112 and MTH 112Z
 MTH 243, STAT 243, and STAT 243Z
 WR 121 and WR 121Z
 WR 121H and WR 121HZ
 WR 122 and WR 122Z
 WR 122 and WR 122HZ
 WR 227 and WR 227Z

MANUAL TRADES APPRENTICESHIP CERTIFICATE

This certificate requires a minimum of 16 credits of related classroom training. Embodied in this certificate are many state certifications. The total related training credits required depend upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee.

4000-Hour BOLI-ATD Trades: Brick Mason, Concrete Finisher, Floor Covering Installer, Glazier/Glass Worker, Laborer, Plasterer, and Roofer

Code	Title	Credits
4000	Hour BOLI-ATD Trades	
	College credit courses for Related-Training	16-44
	Related Instruction	0
	Credit for Prior Certification	0
	Approved Program Electives	0
	Total Credits	16-44

APPRENTICESHIP ELECTIVES

Any department-approved 100 or 200 level PCC course.

ELECTRICIAN APPRENTICESHIP TECHNOLOGIES PATHWAY

Electrician Apprenticeship Technologies AAS Degree (p. 3)
 Electrician Apprenticeship Technologies Certificate (p. 3)
 Limited Electrician Apprenticeship Technologies Certificate (p. 4)

ELECTRICIAN APPRENTICESHIP TECHNOLOGIES AAS DEGREE

The AAS degree total credit requirement depends upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee, however a minimum of 90 credits is required for all degrees. Math/computation competency is met through the courses in the program of study indicated with a § symbol. Students should consult with program advisors for course planning.

Code	Title	Credits
4000-8000	Hour BOLI-ATD Trades	
APR 162	Calculations for the Trades §	4
	College credit courses for Related-Training	16-75
	General Education: 4 courses	
	Credit for Prior Certification	0-22
	Approved Program Electives	0-41
	Total Credits	90-108

§ Course cannot be substituted for another course.

ELECTRICIAN APPRENTICESHIP TECHNOLOGIES CERTIFICATE

This certificate requires a minimum of 16 credits of related classroom training as well as 9 credits of related instruction. Embodied in this certificate are many state certifications. Both the total related training credits and the total related instruction credits depend upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee. 6000 Hour BOLI-ATD Trades: Limited Energy Technician-License A and Sign Maker/Fabricator.
 8000 Hour BOLI-ATD Trades: Inside Electrician, Limited Manufacturing Plant Electrician, Sign Assembler/Fabricator, Sign Maker/Erector and Stationary Engineer

Code	Title	Credits
6000-8000	Hour BOLI-ATD Trades	
	College credit courses for Related-Training	16-99
	Related Instruction ¹	9
	Credit for Prior Certification	0
	Approved Program Electives	0
	Total Credits	25-108

¹ See related instruction list below for approved courses

RELATED INSTRUCTION ¹

Code	Title	Credits
To fulfill the related instruction requirement within a certificate students must pass courses from each category (computation, communication, human relations). The minimum requirement for a two-year certificate is 4 credits from each category and 16 credits total, the minimum requirement for a one-year certificate is 2 credits from each category and 8 credits total. No substitutions are allowed for related instruction. Consult the Apprenticeship and Trades Department for assistance in program planning. [§]		
Computation		
APR 162	Calculations for the Trades	4
BA 111	Introduction to Accounting	3
MTH 105	Math in Society (MTH105=MTH105Z) ^Z	4
MTH 111	Precalculus I: Functions (MTH111=MTH111Z) ^Z	4
MTH 111H		4
MTH 112	Precalculus II: Trigonometry (MTH112=MTH112Z) ^Z	4
STAT 243	Elementary Statistics I (MTH/STAT243=STAT243Z) ^Z	4
MTH 244	Statistics II	4
MTH 251	Calculus I	4
MTH 252	Calculus II	4
MTH 253	Calculus III	5
PHY 101	Force, Motion, and Energy	4
PHY 201	General Physics	4
Communication		
BA 205	Business Communication Using Technology	4
COMM 100	Introduction to Communication (COMM100=COMM100Z) ^Z	4
COMM 111	Public Speaking (COMM111=COMM111Z) ^Z	4
COMM 111H	Public Speaking: Honors (COMM111H=COMM111HZ) ^Z	4
COMM 112	Argumentation, Advocacy, and Debate	4
COMM 140	Introduction to Intercultural Communication	4
COMM 218	Interpersonal Communication (COMM214=COMM218=COMM218Z) ^Z	4
MSD 105	Workplace Communication Skills	3
MSD 119A	Intercultural Communication	1
MSD 138A	Male/Female Communication Differences	1
MSD 141A	The Time-Stress-Communication Triangle	1
MSD 160A	Communication Styles	1
MSD 175B	Direct Communication in the Workplace	1
MSD 176	Nonverbal Communication	1
MSD 176A	Interpersonal Communication	1

WR 115	Introduction to College Composition	4
WR 121	Composition I (WR121=WR121Z) ^Z	4
WR 121H	Composition I: Honors (WR121H=WR121HZ) ^Z	4
WR 122	Composition II (WR122=WR122Z) ^Z	4
WR 122H	Composition II: Honors (WR122H=WR122HZ) ^Z	4
WR 227	Technical Writing (WR227=WR227Z) ^Z	4
Human Relations		
BA 285	Human Relations-Organizations	3
CG 191	Exploring Identity and Diversity for College Success	4
MSD 107	Organizations & People	3
MSD 115	Improving Work Relations	3
MSD 117	Customer Relations	3
MSD 128	Crisis Intervention: Handling the Difficult Person	1
MSD 151	Working with Difficult People	1
MSD 161		1
MSD 162	The Art of Anger Management	1
MSD 200	Organizations and Social Responsibility	3
PSY 101	Psychology and Human Relations	4
PSY 201A	Introduction to Psychology - Part 1	4
PSY 202A	Introduction to Psychology - Part 2	4
PSY 214	Introduction to Personality	4
PSY 215	Human Development	4
PSY 216	Social Psychology	4
PSY 222	Family & Intimate Relationships	4
PSY 231	Foundations of Human Sexuality	4
PSY 232	Human Sexuality in Social Context	4
PSY 236	Psychology of Adult Development and Aging	4
PSY 239	Introduction to Abnormal Psychology	4
PSY 240	Personal Awareness and Growth	4
SOC 204	Introduction to Sociology	4
SOC 205	Social Change	4
SOC 206	Social Problems	4
SOC 213	Diversity in the United States	4
SOC 218	Sociology of Gender	4
SOC 221	Globalization and International Relations	4
SOC 232	Death and Dying: Culture and Issues	4
WS 101	Women's Studies	4
WS 201	Intercultural Women's Studies	4
WS 202	Women, Activism and Social Change	4

§
Related Instruction details can be viewed here.

Z
This course is part of Oregon Common Course Numbering. The following courses are equivalent:
COMM 100 and COMM 100Z
COMM 111 and COMM 111Z
COMM 111H and COMM 111HZ
COMM 214, COMM 218, and COMM 218Z
MTH 105 and MTH 105Z
MTH 111 and MTH 111Z
MTH 112 and MTH 112Z
MTH 243, STAT 243, and STAT 243Z
WR 121 and WR 121Z
WR 121H and WR 121HZ
WR 122 and WR 122Z
WR 122 and WR 122HZ
WR 227 and WR 227Z

LIMITED ELECTRICIAN APPRENTICESHIP TECHNOLOGIES CERTIFICATE

This certificate requires a minimum of 16 credits of related classroom training. Embodied in this Certificate are many state certifications. The total related training credits required depend upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee.
4000 Hour BOLI-ATD Trades: Limited Energy Technician- License B, Limited Maintenance Electrician, Limited Renewable Energy Technician, and Limited Residential Electrician

Code	Title	Credits
4000 Hour BOLI-ATD Trades		
College credit courses for Related-Training		16-44
Related Instruction		0
Credit for Prior Certification		0
Approved Program Electives		0
Total Credits		16-44

APPRENTICESHIP ELECTIVES

Any department-approved 100 or 200 level PCC course.

INDUSTRIAL MECHANICS AND MAINTENANCE TECHNOLOGY APPRENTICESHIP PATHWAY

Industrial Mechanics and Maintenance Technology Apprenticeship AAS Degree (p. 4)
Industrial Mechanics and Maintenance Technology Apprenticeship Certificate (p. 4)
Mechanical Maintenance Apprenticeship Certificate (p. 6)

INDUSTRIAL MECHANICS AND MAINTENANCE TECHNOLOGY APPRENTICESHIP AAS DEGREE

The AAS degree total credit requirement depends upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee, however a minimum of 90 credits is required for all degrees. Math/computation competency is met through the courses in the program of study indicated with a § symbol. Students should consult with program advisors for course planning.

Code	Title	Credits
4000-8000 Hour BOLI-ATD Trades		
APR 162	Calculations for the Trades §	4
College credit courses for Related-Training		16-75
General Education: 4 courses		
Credit for Prior Certification		0-22

Approved Program Electives	0-41	COMM 111	Public Speaking (COMM111=COMM111Z) ^Z	4
Total Credits	90-108			

§		COMM 111H	Public Speaking: Honors (COMM111H=COMM111HZ) ^Z	4
Course cannot be substituted for another course.				

INDUSTRIAL MECHANICS AND MAINTENANCE TECHNOLOGY APPRENTICESHIP CERTIFICATE

This certificate requires a minimum of 16 credits of related classroom training as well as 9 credits of related instruction. Embodied in this certificate are many state certifications. Both the total related training credits and the total related instruction credits depend upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee.

8000 Hour BOLI-ATD Trades: Boiler/Turbine Operator, Die Cast Mold, Heat and Frost Insulator, Industrial Mobile Mechanic, Instrument Technician, Machinist, Millwright, Motor Winder, Pipe fitter, Roll Turner, and Welder

Code	Title	Credits		
6000-8000 Hour BOLI-ATD Trades			MSD 105	Workplace Communication Skills 3
College credit courses for Related-Training			MSD 119A	Intercultural Communication 1
Related Instruction ¹		16-99	MSD 138A	Male/Female Communication Differences 1
Credit for Prior Certification		9	MSD 141A	The Time-Stress-Communication Triangle 1
Approved Program Electives		0	MSD 160A	Communication Styles 1
Total Credits		0	MSD 175B	Direct Communication in the Workplace 1
		25-108	MSD 176	Nonverbal Communication 1
			MSD 176A	Interpersonal Communication 1
			WR 115	Introduction to College Composition 4
			WR 121	Composition I (WR121=WR121Z) ^Z 4
			WR 121H	Composition I: Honors (WR121H=WR121HZ) ^Z 4
			WR 122	Composition II (WR122=WR122Z) ^Z 4
			WR 122H	Composition II: Honors (WR122H=WR122HZ) ^Z 4
			WR 227	Technical Writing (WR227=WR227Z) ^Z 4

¹		Human Relations		
See related instruction list below for approved courses				
		BA 285	Human Relations-Organizations	3
		CG 191	Exploring Identity and Diversity for College Success	4

RELATED INSTRUCTION ¹

Code	Title	Credits		
To fulfill the related instruction requirement within a certificate students must pass courses from each category (computation, communication, human relations). The minimum requirement for a two-year certificate is 4 credits from each category and 16 credits total, the minimum requirement for a one-year certificate is 2 credits from each category and 8 credits total. No substitutions are allowed for related instruction. Consult the Apprenticeship and Trades Department for assistance in program planning. [§]				
Computation				
APR 162	Calculations for the Trades	4	MSD 107	Organizations & People 3
BA 111	Introduction to Accounting	3	MSD 115	Improving Work Relations 3
MTH 105	Math in Society (MTH105=MTH105Z) ^Z	4	MSD 117	Customer Relations 3
MTH 111	Precalculus I: Functions (MTH111=MTH111Z) ^Z	4	MSD 128	Crisis Intervention: Handling the Difficult Person 1
MTH 111H		4	MSD 151	Working with Difficult People 1
MTH 112	Precalculus II: Trigonometry (MTH112=MTH112Z) ^Z	4	MSD 161	
STAT 243	Elementary Statistics I (MTH/ STAT243=STAT243Z) ^Z	4	MSD 162	The Art of Anger Management 1
MTH 244	Statistics II	4	MSD 200	Organizations and Social Responsibility 3
MTH 251	Calculus I	4	PSY 101	Psychology and Human Relations 4
MTH 252	Calculus II	4	PSY 201A	Introduction to Psychology - Part 1 4
MTH 253	Calculus III	5	PSY 202A	Introduction to Psychology - Part 2 4
PHY 101	Force, Motion, and Energy	4	PSY 214	Introduction to Personality 4
PHY 201	General Physics	4	PSY 215	Human Development 4
Communication			PSY 216	Social Psychology 4
BA 205	Business Communication Using Technology	4	PSY 222	Family & Intimate Relationships 4
COMM 100	Introduction to Communication (COMM100=COMM100Z) ^Z	4	PSY 231	Foundations of Human Sexuality 4
			PSY 232	Human Sexuality in Social Context 4
			PSY 236	Psychology of Adult Development and Aging 4
			PSY 239	Introduction to Abnormal Psychology 4
			PSY 240	Personal Awareness and Growth 4
			SOC 204	Introduction to Sociology 4
			SOC 205	Social Change 4
			SOC 206	Social Problems 4
			SOC 213	Diversity in the United States 4
			SOC 218	Sociology of Gender 4
			SOC 221	Globalization and International Relations 4
			SOC 232	Death and Dying: Culture and Issues 4
			WS 101	Women's Studies 4

WS 201	Intercultural Women's Studies	4
WS 202	Women, Activism and Social Change	4

§
Related Instruction details can be viewed here.

Z
This course is part of Oregon Common Course Numbering. The following courses are equivalent:
COMM 100 and COMM 100Z
COMM 111 and COMM 111Z
COMM 111H and COMM 111HZ
COMM 214, COMM 218, and COMM 218Z
MTH 105 and MTH 105Z
MTH 111 and MTH 111Z
MTH 112 and MTH 112Z
MTH 243, STAT 243, and STAT 243Z
WR 121 and WR 121Z
WR 121H and WR 121HZ
WR 122 and WR 122Z
WR 122 and WR 122HZ
WR 227 and WR 227Z

MECHANICAL MAINTENANCE APPRENTICESHIP CERTIFICATE

This certificate requires a minimum of 16 credits of related classroom training. Embodied in this certificate are many state certifications. The total related training credits required depend upon which state apprenticeship the student is pursuing and the requirements of the governing Joint Apprenticeship and Training Committee.

4000 Hour BOLI-ATD Trades: Air Frame and Power Plant Technicians, Boiler Operator, and Programmable Logic Controller

Code	Title	Credits
	4000 Hour BOLI-ATD Trades	
	College credit courses for Related-Training	16-44
	Related Instruction	0
	Credit for Prior Certification	0
	Approved Program Electives	0
	Total Credits	16-44

APPRENTICESHIP ELECTIVES

Any department-approved 100 or 200 level PCC course.

LESS THAN ONE-YEAR CERTIFICATE: CAREER PATHWAY

Pre-Trades
Pre-Trades for Advanced Manufacturing (p. 6)

PRE-TRADES CAREER PATHWAY CERTIFICATE

Minimum 15 credits. Students must meet all certificate requirements.

Pre-Trades Certificate Courses

Code	Title	Credits
APR 162	Calculations for the Trades	4
APR 200A	Pre-Apprenticeship	3
APR 200B	OSHA 30 for Pre-Apprenticeship	3
APR 200C	Pre-Apprenticeship Hands-On Instruction	2
ELT 110	Introduction to Residential Electrical Wiring	3
Total Credits		15

PRE-TRADES FOR ADVANCED MANUFACTURING CAREER PATHWAY CERTIFICATE

Minimum 16 credits. Students must meet all certificate requirements.

Pre-Trades for Advanced Manufacturing Certificate Courses

Code	Title	Credits
APR 162	Calculations for the Trades	4
APR 200D	OSHA 30 General Industry	3
or APR 200B	OSHA 30 for Pre-Apprenticeship	
ELT 125	Basic Programmable Logic Controllers	2
MCH 121	Manufacturing Processes I	5
WLD 190B	Basic Welding Practice	2
Total Credits		16