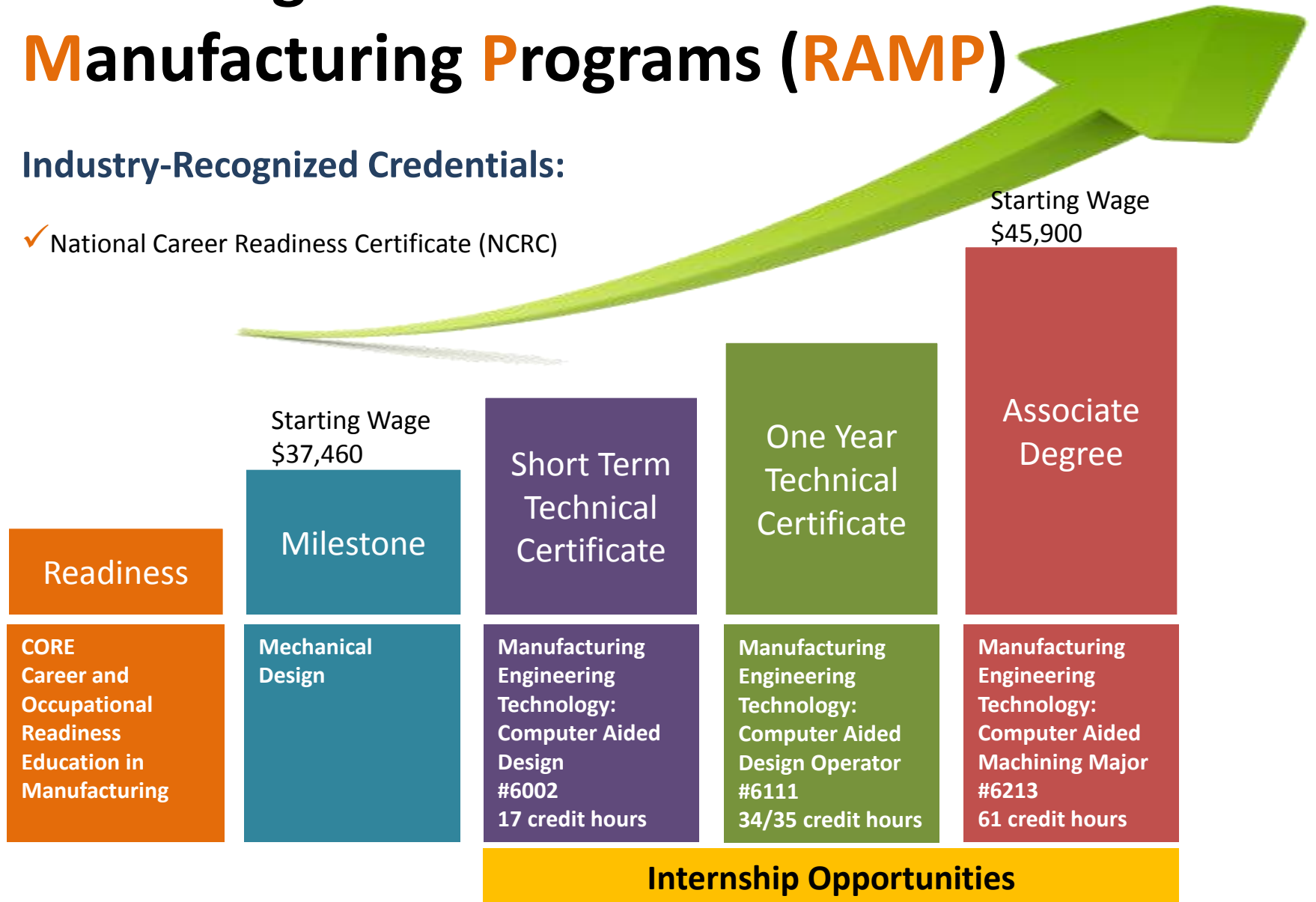


# Mechanical Design

## Retooling Adults for Manufacturing Programs (RAMP)

### Industry-Recognized Credentials:

- ✓ National Career Readiness Certificate (NCRC)



## Milestone

### Program Overview:

The Computer Aided Design (CAD) Short-Term Technical Certificate recognizes the student who has completed a core group of CAD and CAD-related courses. This collection of courses will provide the student with specialized knowledge and skills necessary to be prepared for entry-level employment in a variety of industries that utilize CAD. Program prepares students to earn industry endorsed skills credentials:

### Industry-Recognized Credentials:

- ✓ National Career Readiness Certificate (NCRC)

### Occupational Title

### Starting Wage:

### Annual Job Openings

- Electrical and Electronic Drafters
- Mechanical Drafters

\$37,460  
\$37,544

11  
36

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Readiness

Milestone

CORE  
Career and  
Occupational  
Readiness  
Education in  
Manufacturing

Mechanical  
Design

# Milestone

## Mechanical Design Milestone

The milestone denotes industry recognized skills and knowledge necessary for an entry level position. Students successfully completing the specified Milestone for the Manufacturing Engineering Technology - Mechanical Design - Associate of Applied Science Degree (Curriculum Code 6212) will be eligible to participate in a Work-Based Learning experience.

Required Courses			Credit Hours	
Δ*	CADD	111	Introduction to Computer Aided Drafting	2
Δ	ELCT	111	Electrical Circuits I	3
Δ☆	SDEV	101	College 101	1
Δ	TECN	111	Technical Problem Solving	3
Δ	TECN	115	Industrial Blueprint Reading	2
Δ*	TECN	131	Manufacturing Processes I	3
	CADD	287	Work Based Learning	1-3
				<hr/>
				15-17

### Notes

1. \* Indicates that this course requires a prerequisite or may be taken concurrently.
2. Δ Program Milestone course.
3. ☆ A student must register for the orientation course when enrolling for more than six credit hours per semester or any course that would result in an accumulation of thirteen or more credit hours.

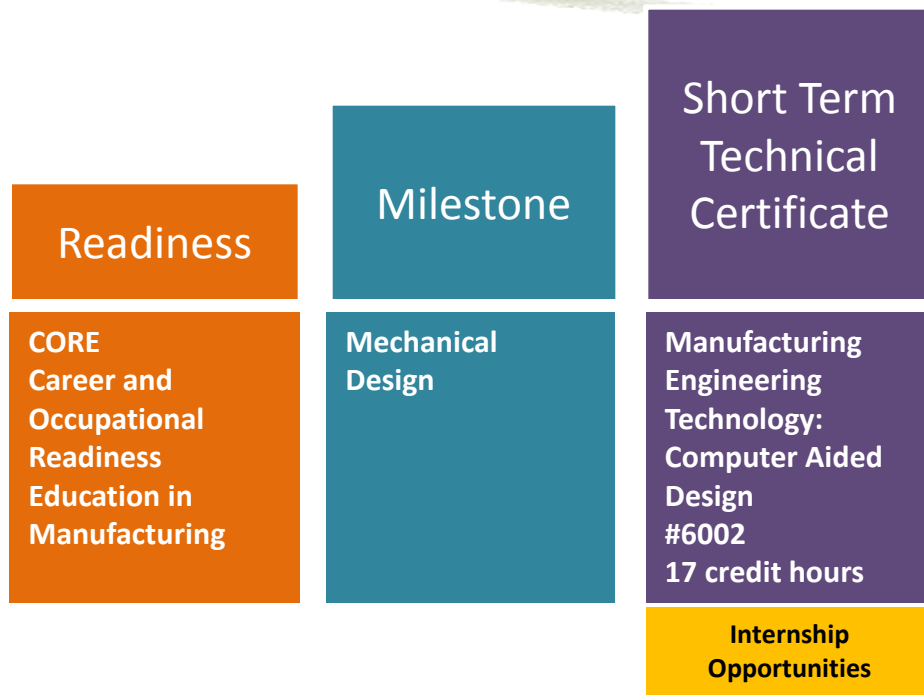
# Schedule – Mechanical Design Milestone

Course Title	Course Name	Days	Time	Dates
ELCT 111	Electrical Circuits I [LEC]	M/W	9:30 am – 10:20 am	8/28/17 – 12/17/17
ELCT 111	Electrical Circuits I [LAB]	M/W	10:30 am – 11:45 am	8/28/17 – 12/17/17
TECN 131	Manufacturing Processes [LEC]	M/W	12:00 pm – 12:50 pm	8/28/17 – 12/17/17
TECN 131	Mechanical Systems [LAB]	M/W	1:00 pm – 3:40 pm	8/28/17 – 12/17/17
CADD 111	Intron to Computer Aided Design [LEC]	T/R	9:30 am – 9:55 am	8/28/17 – 12/17/17
CADD 111	Intro to Computer Aided Design [LAB]	T/R	10:00 am – 11:15 am	8/28/17 – 12/17/17
TECN 111	Technical Problem Solving [LEC]	T/R	1:00 pm – 1:50 pm	8/28/17 – 12/17/17
TECN 111	Technical Problem Solving [LAB]	T/R	2:00 pm – 3:15 pm	8/28/17 – 12/17/17
TECN 115	Industrial Blueprint Reading [LEC]	T/R	5:30 pm – 5:55 pm	8/28/17 – 12/17/17
TECN 115	Industrial Blueprint Reading [LAB]	T/R	6:00 pm – 6:50 pm	8/28/17 – 12/17/17
SDEV 101	College 101	Many Available to Choose From		

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# Short-Term Technical Certificate

**Lorain County Community College**  
**Manufacturing Engineering Technology**  
**Computer Aided Design**  
**Engineering Technologies Division**  
**Short Term Technical Certificate - Curriculum Code 6002**

The Computer Aided Design (CAD) Short Term Technical Certificate recognizes the student who has completed a core group of CAD and CAD-related courses. This collection of courses will provide the student with specialized knowledge and skills necessary to be prepared for entry-level employment in a variety of industries that utilize CAD. Lorain County Community College has articulation agreements with colleges and universities including programs offered by LCCC's University Partnership.

Course	Course Title	Credits	Contact Hrs.	Lec Hrs.	Lab Hrs.
<b>Fall Semester</b>					
* CADD 111	Introduction to Computer Aided Drafting	2	4	1	3
☆ SDEV 101	College 101	1	1	1	0
TECN 111	Technical Problem Solving	3	5	2	3
TECN 115	Industrial Blueprint Reading	2	3	1	2
		8			
<b>Spring Semester</b>					
> CADD 201	3D Computer Drafting OR	3	5	2	3
≥ CADD 212	Introduction to Creo Parametric OR				
≥ CADD 213	Introduction to SolidWorks OR				
≥ CADD 214	Introduction to Inventor				
> CADD 235	Detailing and Dimensioning	3	5	2	3
> TECN 131	Manufacturing Processes I	3	6	2	4
		9			
<b>Total Semester Credit Hours</b>		<b>17</b>			

Established	Jan-00
Revised	Mar 14
Effective	Aug 14

**Notes**

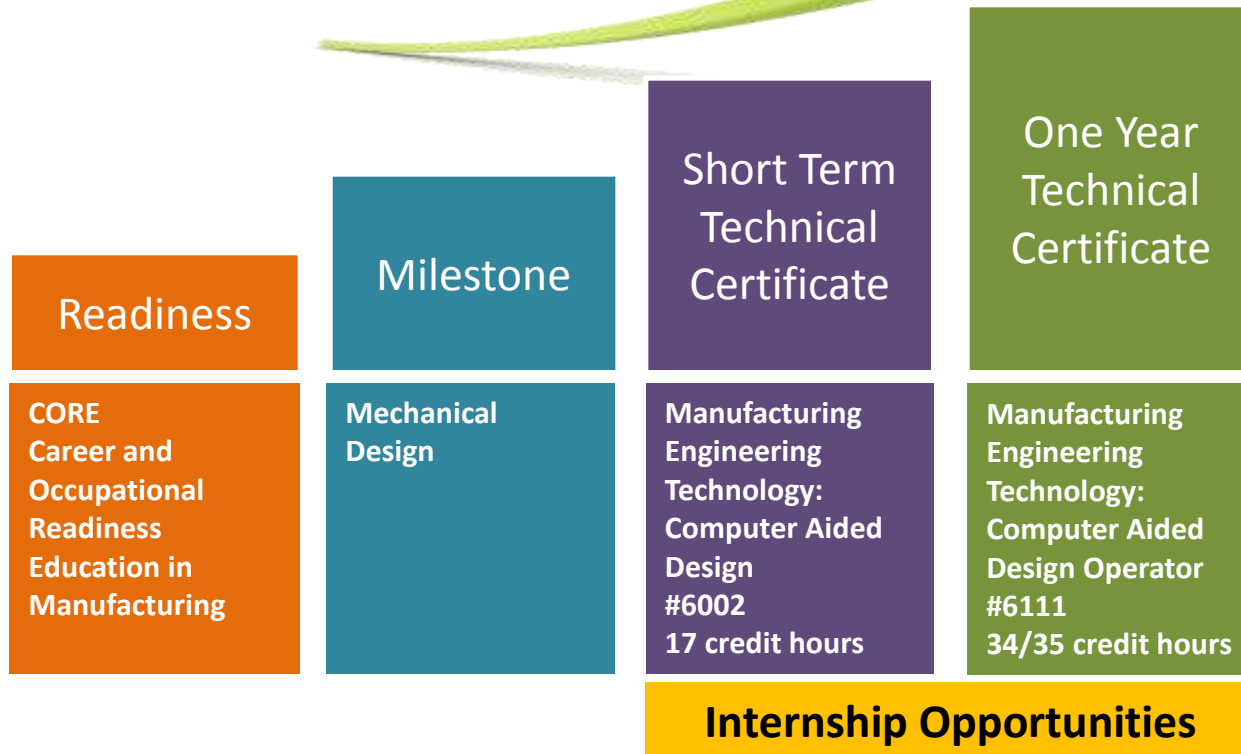
1. > Indicates that this course requires a prerequisite.
2. OR Indicates that a student may select either course which may have an effect on the total credit hours.
3. \* Indicates that this course requires a prerequisite or may be taken concurrently.
4. ☆ A student must register for the orientation course when enrolling for more than six credit hours per semester or any course that would result in an accumulation of thirteen or more credit hours.



## Retooling Adults for Manufacturing Programs (RAMP)

### Industry-Recognized Credentials:

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# One-Year Technical Certificate

**Lorain County Community College**  
**Manufacturing Engineering Technologies**  
**Computer Aided Design Operator**  
 Engineering Technologies Division  
**One Year Technical Certificate - Curriculum Code 6111**

The CAD Operator Certificate Program is designed to provide students with the knowledge and cognitive skills necessary for the competent performance as an entry-level CAD operator. Employment opportunities exist in a variety of manufacturing companies, such as automotive, steel, plastics, and others. Lorain County Community College has articulation agreements with colleges and universities including programs offered by Lorain County Community College's University Partnership.

	Course	Course Title	Credits	Contact Hrs.	Lec Hrs.	Labo Hrs.
<b>Fall Semester</b>						
*	CADD 111	Introduction to Computer Aided Drafting	2	4	1	3
	MTHM 121	Technical Mathematics I	4	4	4	0
☆	SDEV 101	College 101	1	1	1	0
	TECN 111	Technical Problem Solving	3	5	2	3
	TECN 115	Industrial Blueprint Reading	2	3	1	2
*	TECN 131	Manufacturing Processes I	3	6	2	4
		Arts and Humanities Elective**	3			
			18			
<b>Spring Semester</b>						
>	CADD 201	3D Computer Drafting OR	3	5	2	3
>	CADD 212	Introduction to Creo Parametric OR		5	2	3
>	CADD 213	Introduction to SolidWorks OR		5	2	3
>	CADD 214	Introduction to Inventor		5	2	3
>	CADD 235	Detailing and Dimensioning	3	5	2	3
>	CAMM 111	Introduction to Computer Numerical Control OR	2/3	4	1	3
	ELCT 111	Electrical Circuits I		5	2	3
	ENGL 161	College Composition I	3	3	3	0
>	TECN 245	Geometric Dimensioning and Tolerancing	2	2	2	0
		Social Sciences Elective ***	3			
			16/17			
		<b>Total Semester Credit Hours:</b>	<b>34/35</b>			

Established	Oct-90
Revised	Apr-14
Effective	Aug-15

**Notes:**

1. > Indicates that this course requires a prerequisite.
2. OR Indicates that a student may select either course which may have an effect on the total credit hours.
3. \* Indicates that this course requires a prerequisite or may be taken concurrently.
4. \*\* Course selected from the following list: ARTS 243, 244, 245, 246, 254; ENGL 251, 252, 253, ENGL 254, 255, 257, 259, 261, 262, 265, 266, 269; HUMS 151, 161, 261, 262, 271, 274; MUSC 262; PHLI 165, 262; RELG 181, 261, 262; THTR 151.
5. \*\*\* Course selected from the following list: HSTR 151, 152, 161, 162, 171, 252, 267, 268, 269; PLSC 156; PSYH 151; SOCY 151.
6. ☆ A student must register for the orientation course when enrolling for more than six credit hours per semester or any course that would result in an accumulation of thirteen or more credit hours.

# Mechanical Design

## Retooling Adults for Manufacturing Programs (RAMP)

### Industry-Recognized Credentials:

- ✓ National Career Readiness Certificate (NCRC)



# Associate of Applied Science

**Lorain County Community College**  
**Manufacturing Engineering Technology**  
**Mechanical Design Major**  
 Engineering Technologies Division  
 Associate of Applied Science - Curriculum Code 6212

The Mechanical Design Major is designed to provide students with the knowledge and cognitive skills necessary for the competent performance as an entry-level mechanical drafter/designer or CAD operator. Employment opportunities exist in a variety of manufacturing companies such as automotive, steel, plastics and others. Lorain County Community College has articulation agreements with colleges and universities including programs offered by LCCC's University Partnership.

	Course	Course Title	Credits	Contact Hrs	Lec Hrs	Lab Hrs
<b>First Year</b>						
<b>Fall Semester</b>						
*	CADD 111	Introduction to Computer Aided Drafting	2	4	1	3
	MTHM 121	Technical Mathematics I	4	4	4	0
☆	SDEV 101	College 101	1	1	1	0
	TECN 111	Technical Problem Solving	3	5	2	3
	TECN 115	Industrial Blueprint Reading	2	3	1	2
*	TECN 131	Manufacturing Processes I	3	6	2	4
			15			
<b>Spring Semester</b>						
>	CADD 235	Detailing and Dimensioning	3	5	2	3
>	CAMM 111	Introduction to Computer Numerical Control OR	2/3	4	1	3
	ELCT 111	Electrical Circuits I		5	2	3
>	EMCH 111	Statics for Technology	3	5	2	3
	ENGL 161	College Composition I	3	3	3	0
>	MTHM 122	Technical Mathematics II	3	3	3	0
>	TECN 132	Manufacturing Processes II	3	6	2	4
			17/18			
<b>Second Year</b>						
<b>Fall Semester</b>						
>	EMCH 211	Strength of Materials	4	6	3	3
>	ENGL 164	College Composition II with Technical Topics	3	3	3	0
>	PHYC 150	General Physics I	4	6	3	3
	QLTY 121	Quality Assurance Techniques (SPC) *** OR	2/3	4	1	3
*	TECN 121	Fluid Power ***		4	2	2
			13/14			
<b>Spring Semester</b>						
>	CADD 201	3D Computer Drafting OR	3	5	2	3
>	CADD 212	Introduction to Creo Parametric OR		5	2	3
>	CADD 213	Introduction to SolidWorks OR		5	2	3
>	CADD 214	Introduction to Inventor		5	2	3
>	EMCH 221	Machine Design	3	5	2	3
>	TECN 245	Geometric Dimensioning and Tolerancing	2	2	2	0
			3			
			3			
			14			
<b>Total Semester Credit Hours</b>			<b>60/61</b>			

Established	Oct-90
Revised	Apr-15
Effective	May-16

**Notes**

1. > Indicates that this course requires a prerequisite.
2. OR Indicates that a student may select either course, which may have an effect on the total credit hours.
3. \* Indicates that this course requires a prerequisite or may be taken concurrently.
4. \*\* Course selected from the following list: ARTS 243, 244, 245, 246, 254; ENGL 251, 252, 253, ENGL 254, 255, 257, 259, 261, 262, 265, 266, 269; HUMS 151, 161, 261, 262, 271, 274; MUSC 262; PHLI 165, 262; RELG 181, 261, 262; THTR 151.
5. ^^ Course selected from the following list: HSTR 151, 152, 161, 162, 171, 252, 267, 268, 269; PLSC 156; PSYH 151; SOCY 151.
6. \*\*\* Indicates that a student may substitute Work-Based Learning (CADD 287, 288, and/or 289) for the equivalent number of credit hours for this course.
7. ☆ A student must register for the orientation course when enrolling for more than six credit hours per semester or any course that would result in an accumulation of thirteen or more credit hours.