

# INDUSTRIAL PROCESS PROFESSIONS

## Basic Industrial & Manufacturing Maintenance Certificate

<http://www.sandburg.edu/Academics/Degree-Certificates/Basic-Industrial-Manufacturing/index.html>

The certificate program provides generalized knowledge of electrical, welding, and manufacturing and industrial processes giving the program graduates knowledge and skill to be general maintenance workers in a variety of industrial, manufacturing, utilities, telecommunications and transportation settings.

The certificate is the first semester for the following A.A.S. degrees:

- Locomotive Electrical (<http://catalog.sandburg.edu/degreesprogramsandcertificates/locomotiveelectrical>)
- Locomotive Mechanical (<http://catalog.sandburg.edu/degreesprogramsandcertificates/locomotivemechanical>)
- Rail/Off Highway Motive Power Electrical Technician ([http://catalog.sandburg.edu/degreesprogramsandcertificates/rail\\_offhighwaymotivepowerelectricaltechnician](http://catalog.sandburg.edu/degreesprogramsandcertificates/rail_offhighwaymotivepowerelectricaltechnician))
- Process Maintenance Technology (p. 2)

## Admission to the Program: Open Industrial Mechanical Maintenance Certificate

This certificate is designed for persons who want to prepare for initial or improved employment in the industry mechanical area. The curriculum provides for a student to learn the basic principles and skills which are necessary to industrial maintenance, such as drafting/blueprint reading, electricity, hydraulics and pneumatics, machine tool, mathematics and fundamentals of welding.

## Admission to the Program: Open Process Maintenance Technology A.A.S.

This degree program is designed for persons who want to prepare for employment as industry machinery mechanic, maintenance worker or stationary engineer and boiler operator. The curriculum provides for a student to learn the skills which are necessary to industrial maintenance and gives the student to choose the track where their aptitude lies – electricity or welding.

## Admission to the Program: Open First-Time Enrollees

1. Complete an application for admission and, if desired, apply for financial aid.
2. Send an official high school transcript or GED score report to the Admissions and Records Office.
3. Complete the placement exam.
4. Meet with an advisor/counselor to select classes and complete the registration process.

## Department of Career & Corporate Development

2400 Tom L. Wilson Blvd.  
Galesburg, IL 61401

Phone: 309.341.5313

### For Additional Information Contact:

The Welcome Center  
Phone:309.345.3500  
[welcomecenter@sandburg.edu](mailto:welcomecenter@sandburg.edu)

### For Graduation Requirements:

See the graduation policies and procedures ([http://catalog.sandburg.edu/academicinformation/#graduation\\_policies\\_and\\_procedures](http://catalog.sandburg.edu/academicinformation/#graduation_policies_and_procedures)) page for details.

## Basic Industrial & Manufacturing Maintenance - Certificate

Course	Title	Semester Hours
<b>First Year</b>		
<b>Fall Semester</b>		
ELT.100	Electrical Fundamentals	3
MAT.101	Technical Mathematics 1	3
MFG.100	Introduction to Welding	3
MFG.130	Industrial Safety	2
MTL.101	Machine Tool Fundamentals 1	3
MTL.103	Manufacturing Processes	2
Total Semester Hours		16

Note: Students enrolled in the Basic Industrial Manufacturing Maintenance Certificate must complete ELT, MTL, and WEL courses with a grade of C or better. In order to graduate, students must complete all ELT, MTL and WEL courses with a grade of C or better.

## Industrial Mechanical Maintenance - Certificate

Course	Title	Semester Hours
<b>First Year</b>		
<b>Fall Semester</b>		
ELT.100	Electrical Fundamentals	3
MAT.101	Technical Mathematics 1	3
MFG.100	Introduction to Welding	3
MFG.130	Industrial Safety	2
MTL.101	Machine Tool Fundamentals 1	3
MTL.103	Manufacturing Processes	2
<b>Spring Semester</b>		
BOC.107	Tech Skills for Business Environment	3
DRF.100	Basic Drafting	2
MFG.125	Industrial Blueprints	3
HYD.101	Hydraulics and Pneumatics	3
MAT.102	Technical Mathematics 2	3
Total Semester Hours		30

Note: Students enrolled in the Industrial Mechanical Maintenance Certificate must complete ELT, MTL, and WEL courses with a grade of C or better. In order to graduate, students must complete all ELT, MTL and WEL courses with a grade of C or better.

(Students who do not expect to complete their degree within five years should refer to the Graduation Requirements section in this catalog.)

## Process Maintenance Technology - Associate in Applied Science

Course	Title	Semester Hours
<b>First Year</b>		
<b>Fall Semester</b>		
ELT.100	Electrical Fundamentals	3
MAT.101	Technical Mathematics 1	3
MFG.100	Introduction to Welding	3
MFG.130	Industrial Safety	2
MTL.101	Machine Tool Fundamentals 1	3
MTL.103	Manufacturing Processes	2
<b>Spring Semester</b>		
BOC.107	Tech Skills for Business Environment	3
DRF.100	Basic Drafting	2
MFG.125	Industrial Blueprints	3
HYD.101	Hydraulics and Pneumatics	3
MAT.102	Technical Mathematics 2	3
<b>Second Year</b>		
<b>Fall Semester</b>		
ELT.107	Digital Logic & Circuits	3
ELT.119	Industrial Electronic Control	3
SPE.110	Interpersonal Communication	3
or SPE.120	or Introduction to Public Speaking	
PSY.101	Introduction to Psychology	3
or PSY.107	or Positive Psychology	
or SOC.101	or Introduction to Sociology	
ICT.110	Computer Software Applications	3
<b>Spring Semester</b>		
PHY.110	Applied Physics	3
BUS.100	Introduction to Business	3
ELT.212	Industrial Electricity	3
Total Semester Hours		54

Select One Track to Complete:

<b>Welding Track</b>		
WEL.160	Oxyacetylene Welding & Metal Preparation	3
WEL.162	Arc Welding Basics	3
<b>Electrical Track</b>		
ELT.209	AC/DC Drives and Servos	3
ELT.213	Process Control & Instrumentation	3
Total Degree Hours		60

### Schave, Jamie

Instructor, welding

### La Londe, Matthew J

Instructor, welding

### Kellogg, David M

associate dean, career and corporate development

The Center for Manufacturing Excellence (CME) offers classroom space, a computer lab, and houses Carl Sandburg College's industrial programs. Students may take courses in the following subject areas: welding, biofuels, rail, machine tooling, manufacturing or electrical. The electrical lab features a host of components to aid in student learning including AC/DC trainers. In 2014, Sandburg became a designated National Academy of Railroad Sciences (NARS) training site offering courses in locomotive electrical and locomotive mechanical. Instruction is delivered by individuals with industry-specific expertise and includes specialized coursework using technical equipment. Two diesel engines inside the CME are available for training opportunities. The College's welding lab offers 16 bay stations and soon will have an additional ten working spaces. The welding area offers a welding simulator, as well as state of the art multi process welding machines.