WELDING ENGINEERING TECHNOLOGY, ASSOCIATE IN APPLIED SCIENCE

College(s): DA

Program Code: 0451

This program is for students looking to work within the exciting field of Welding Engineering Technology. Students will learn welding skills including MIG, TIG, Cutting and small machine operation related welding in addition to weld inspection techniques and processes. CNC fabrication equipment commonly associated with welding fabrication will also be introduced and utilized in projects. Students will learn about materials and their selection and processing applications. Students will be performing hands on welding and fabrication projects throughout this program to develop skills that employers are looking for and will allow students to succeed in careers in Welding Engineering Technology or if they choose to pursue further studies such as Bachelor’s Degree programs in related fields.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 101</td>
<td>Composition</td>
<td>3</td>
</tr>
<tr>
<td>MATH 140</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>340MFGT 105</td>
<td>Introduction to Advanced Manufacturing I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 106</td>
<td>Introduction to Advanced Manufacturing II</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 107</td>
<td>Introduction to Advanced Manufacturing III</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 108</td>
<td>Robotics I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 109</td>
<td>Introduction to Manual Machining</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 110</td>
<td>CNC I Operations</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 153</td>
<td>Welding I GMAW</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 154</td>
<td>Welding II GTAW</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 171</td>
<td>Automated Metrology-Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 188</td>
<td>Industrial Electricity I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 210</td>
<td>Automated Fabrication I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 211</td>
<td>AUTOMATED FABRICATION II</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 251</td>
<td>Welding III-Advanced Welding</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 252</td>
<td>Welding IV - Inspection</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 274</td>
<td>Materials II - Testing and Analysis</td>
<td>3</td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>61</td>
</tr>
</tbody>
</table>

At least one course must meet the Human Diversity (HD) requirement.

Pathway

This is an example course sequence for students interested in pursuing Welding Engineering Technology. This does not represent a contract, nor does it guarantee course availability. If this pathway is followed as outlined, you will earn Basic Certificates (BC) in Manufacturing Technology and CNC Technology, and an Advanced Certificate (AC) and Associate in Applied Science (AAS) in Welding Engineering Technology.

Semester-by-Semester Program Plan for Full-Time Students

All plans can be modified to fit the needs of part-time students by adding more semesters.

Course | Title                                      | Hours |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>340MFGT 105</td>
<td>Introduction to Advanced Manufacturing I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 106</td>
<td>Introduction to Advanced Manufacturing II</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 107</td>
<td>Introduction to Advanced Manufacturing III</td>
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</table>
Welding Engineering Technology, Associate in Applied Science

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340MFGT 108 Robotics I 3
340MFGT 153 Welding I GMAW 3

Semester 2
340MFGT 109 Introduction to Manual Machining 3
340MFGT 110 CNC I Operations 3
340MFGT 154 Welding II GTAW 3
340MFGT 188 Industrial Electricity I 3
ENGLISH 101 Composition 3

Hours 15

Semester 3
340MFGT 171 Automated Metrology-Quality Assurance 3
340MFGT 210 Automated Fabrication I 3
340MFGT 251 Welding III-Advanced Welding 3
MATH 140 College Algebra 4
Social and Behavioral Sciences course (HD) 3

Hours 15

Semester 4
340MFGT 211 AUTOMATED FABRICATION II 3
340MFGT 252 Welding IV - Inspection 3
340MFGT 274 Materials II - Testing and Analysis 3
Fine Arts & Humanities course (HD) 3
Physical Sciences or Life Sciences course 3

Hours 15

Total Hours 61

Careers
This program can prepare students for the jobs listed below. Click on each one to learn more, including average earnings, annual job openings, and how much education people in that field have. For additional guidance and resources on career options, current City Colleges students and alumni can contact the Career Services Office (https://www.ccc.edu/departments/Pages/Career-Services.aspx).

Welders, Cutters, Solderers, and Brazers

Job Description
Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.

Salary Based on Experience Level
Take a look at the average hourly/annual earnings for this career in Cook County

Annual Wages
Entry-Level 10th Percentile $29,352
Median 50th Percentile $42,896
Senior-Level 90th Percentile $70,267

Hourly Wages
Entry-Level 10th Percentile $14
Median 50th Percentile $21
Senior-Level 90th Percentile $34

Annual Job Openings
406 annual openings in Cook County

National Education Attainment
Here, you can see the level of education that people in this career complete.

Degree Program % of Jobs
A high school diploma or less 45.47%
A certificate 41.32%
Some college 13.17%
An Associate degree 0.05%
A Bachelor's degree 0.00%
A Master's or Professional degree 0.00%
A Doctoral degree or more 0.00%

0.00% continue their education beyond an associate degree

Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Job Description
Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Includes workers who operate laser cutters or laser-beam machines.

Salary Based on Experience Level
Take a look at the average hourly/annual earnings for this career in Cook County

Emi earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

Annual Wages
Entry-Level 10th Percentile $26,472
Median 50th Percentile $33,871
Senior-Level 90th Percentile $50,729

Hourly Wages
Entry-Level 10th Percentile $13
Median 50th Percentile $16
Senior-Level 90th Percentile $24

Annual Job Openings
47 annual openings in Cook County

National Education Attainment
Here, you can see the level of education that people in this career complete.

Degree Program % of Jobs
A high school diploma or less 70.09%
A certificate 28.50%
Some college 1.41%
An Associate degree 0.00%
A Bachelor's degree 0.00%
A Master's or Professional degree 0.00%
A Doctoral degree or more 0.00%

0.00% continue their education beyond an associate degree

**Millwrights**

**Job Description**

Install, dismantle, or move machinery and heavy equipment according to layout plans, blueprints, or other drawings.

**Salary Based on Experience Level**

Take a look at the average hourly/annual earnings for this career in Cook County

Emsi earnings figures are based on OES data from the BLS and include base rate, cost of living allowances, guaranteed pay, hazardous-duty pay, incentive pay (including commissions and bonuses), on-call pay, and tips.

**Annual Wages**

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-Level 10th Percentile</td>
<td>$42,227</td>
</tr>
<tr>
<td>Median 50th Percentile</td>
<td>$71,177</td>
</tr>
<tr>
<td>Senior-Level 90th Percentile</td>
<td>$103,516</td>
</tr>
</tbody>
</table>

**Hourly Wages**

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry-Level 10th Percentile</td>
<td>$20</td>
</tr>
<tr>
<td>Median 50th Percentile</td>
<td>$34</td>
</tr>
<tr>
<td>Senior-Level 90th Percentile</td>
<td>$50</td>
</tr>
</tbody>
</table>

**Annual Job Openings**

45 annual openings in Cook County

**National Education Attainment**

Here, you can see the level of education that people in this career complete.

<table>
<thead>
<tr>
<th>Degree Program</th>
<th>% of Jobs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A high school diploma or less</td>
<td>60.87%</td>
</tr>
<tr>
<td>A certificate</td>
<td>30.43%</td>
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<tr>
<td>Some college</td>
<td>0.00%</td>
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<tr>
<td>An Associate degree</td>
<td>8.70%</td>
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<tr>
<td>A Bachelor's degree</td>
<td>0.00%</td>
</tr>
<tr>
<td>A Master's or Professional degree</td>
<td>0.00%</td>
</tr>
<tr>
<td>A Doctoral degree or more</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

0.00% continue their education beyond an associate degree