MECHATRONICS ENGINEERING TECHNOLOGY, ASSOCIATE IN APPLIED SCIENCE

College(s): DA
Program Code: 0453

The Mechatronics Engineering Technology Associate in Applied Science degree is for those students looking to work within industrial maintenance, the field of automation and with robotics and PLCs (Programmable Logic Controls). Students will study mechanical skills necessary for repairing, installing and modifying industrial mechatronic systems and practice these skills in the hands on labs for PLCs, robotics, mechanisms and automation. Mechatronic skills are desired by manufacturers for roles in automating and maintaining production systems. Companies are looking for employees with these skills in the automated warehouse, automotive assembly and various automated manufacturing industries. Industrial Maintenance technicians are needed in every manufacturing production facility to maintain, repair and install the equipment utilized in the production processes manufacturing companies utilize. In addition to careers in industry, students are able to continue their studies in Bachelor’s degree programs if desired.

Program Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 140</td>
<td>College Algebra</td>
<td>4</td>
</tr>
<tr>
<td>ENGLISH 101</td>
<td>Composition</td>
<td>3</td>
</tr>
<tr>
<td>Social and Behavioral Sciences</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Fine Arts/Humanities</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Physical Sciences/Life Sciences</td>
<td></td>
<td>3</td>
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<tr>
<td>Required Program Core</td>
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</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>or 340MFGT 19</td>
<td>Manual Machining II</td>
<td></td>
</tr>
<tr>
<td>340MFGT 188</td>
<td>Industrial Electricity I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 189</td>
<td>Industrial Electricity II - Motors</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 208</td>
<td>ROBOTICS II - ROBOTIC INTEGRATION</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 209</td>
<td>Computer Aided Manufacturing (CAM) I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 287</td>
<td>Maintenance Technologies I</td>
<td>3</td>
</tr>
<tr>
<td>340MFGT 288</td>
<td>Industrial Electricity III - PLC’s I</td>
<td>3</td>
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<tr>
<td>340MFGT 289</td>
<td>INDUSTRIAL ELECTRICITY IV - PLC’S II</td>
<td>3</td>
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<tr>
<td>340MFGT 290</td>
<td>Process Technology I</td>
<td>3</td>
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<tr>
<td>Total Hours</td>
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<td>61</td>
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</tbody>
</table>

1 At least one course must meet the Human Diversity (HD) (https://catalog.ccc.edu/hd/) requirement.

Pathway

This is an example course sequence for students interested in pursuing Mechatronics 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 Mechatronics 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.
Semester 1
- 340MFGT 105: Introduction to Advanced Manufacturing I 3
- 340MFGT 106: Introduction to Advanced Manufacturing II 3
- 340MFGT 107: Introduction to Advanced Manufacturing III 3
- 340MFGT 108: Robotics I 3
- 340MFGT 108: Industrial Electricity I 3

Hours: 15

Semester 2
- 340MFGT 109: Introduction to Manual Machining 3
- 340MFGT 110: CNC I Operations 3
- 340MFGT 153: Welding I GMAW 3
  or 340MFGT 195: Manual Machining II 3
- 340MFGT 189: Industrial Electricity II - Motors 3
- ENGLISH 101: Composition 1 3

Hours: 15

Semester 3
- 340MFGT 209: Computer Aided Manufacturing (CAM) I 3
- 340MFGT 288: Industrial Electricity III - PLC's I 3
- 340MFGT 290: Process Technology I 3
- Social and Behavioral Sciences course (HD) 3
- MATH 140: College Algebra 1 1

Hours: 16

Semester 4
- 340MFGT 287: Maintenance Technologies I 3
- 340MFGT 289: INDUSTRIAL ELECTRICITY IV - PLC'S II 3
- Fine Arts/Humanities course (HD) 1 3
- Physical Sciences/Life Sciences course 1 3

Hours: 15

Total Hours: 61

1 General Education course

Choose your courses with your College Advisor.

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).

Industrial Machinery Mechanics
Job Description
Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems. May also install, dismantle, or move machinery and heavy equipment according to plans.

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

Lightcast 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  $41,627
Median 50th Percentile  $63,039
Senior-Level 90th Percentile  $83,824

Hourly Wages
Entry-Level 10th Percentile  $20
Median 50th Percentile  $30
Senior-Level 90th Percentile  $40

Annual Job Openings
234 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  39.09%
A certificate  47.22%
Some college  0.00%
An Associate degree  13.70%
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

Electro-Mechanical and Mechatronics Technologists and Technicians
Job Description
Operate, test, maintain, or adjust unmanned, automated, servomechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment to observe or record visual information at sites such as oil rigs, crop fields, buildings, or for similar infrastructure, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.

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

Lightcast 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  $69,657
Median 50th Percentile  $121,125
Senior-Level 90th Percentile  $133,654
Hourly Wages

Entry-Level 10th Percentile $33
Median 50th Percentile $58
Senior-Level 90th Percentile $64

Annual Job Openings

5 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 9.09%
A certificate 22.73%
Some college 0.00%
An Associate degree 45.45%
A Bachelor's degree 22.73%
A Master's or Professional degree 0.00%
A Doctoral degree or more 0.00%

22.73% continue their education beyond an associate degree

Electrical and Electronics Repairers, Commercial and Industrial Equipment

Job Description

Repairs, tests, adjusts, or installs electronic equipment, such as industrial controls, transmitters, and antennas.

Salary Based on Experience Level

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

Lightcast 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 $48,493
Median 50th Percentile $64,899
Senior-Level 90th Percentile $97,484

Hourly Wages

Entry-Level 10th Percentile $23
Median 50th Percentile $31
Senior-Level 90th Percentile $47

Annual Job Openings

29 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 22.02%
A certificate 32.27%
Some college 0.00%
An Associate degree 45.71%
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
Industrial Engineering Technologists and Technicians

Job Description

Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency.

Salary Based on Experience Level

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

Lightcast 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>Entry-Level</th>
<th>Median</th>
<th>Senior-Level</th>
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</thead>
<tbody>
<tr>
<td>10th Percentile</td>
<td>$43,480</td>
<td>$58,954</td>
<td>$93,970</td>
</tr>
<tr>
<td>50th Percentile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90th Percentile</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Hourly Wages

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Entry-Level</th>
<th>Median</th>
<th>Senior-Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>10th Percentile</td>
<td>$21</td>
<td>$28</td>
<td>$45</td>
</tr>
<tr>
<td>50th Percentile</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90th Percentile</td>
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Annual Job Openings

77 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>21.64%</td>
</tr>
<tr>
<td>A certificate</td>
<td>1.25%</td>
</tr>
<tr>
<td>Some college</td>
<td>36.92%</td>
</tr>
<tr>
<td>An Associate degree</td>
<td>25.54%</td>
</tr>
<tr>
<td>A Bachelor's degree</td>
<td>14.65%</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>

14.65% continue their education beyond an associate degree