

**SCHOOL OF INDUSTRIAL TECHNOLOGY**

**Advanced Manufacturing Systems Technology AAS Degree (MS23)**

*Offered at Currahee Campus*

Entrance Dates ..... Fall, Spring, Summer  
 Length of Program..... 5 Terms  
 Credit Hours Required for Graduation ..... 64-68

**Purpose:** The Advanced Manufacturing Systems Technology Associates of Applied Science Degree Program is designed around the changing skills demanded by area manufactures. The program provides learning opportunities that introduce, develop, and reinforce academic and technical knowledge, skills, and attitudes required for job acquisition, retention, and advancement. Additionally, the program provides opportunities to retrain or upgrade present knowledge and skills. The program teaches skills in industrial maintenance and automated control systems. The program is excellent for people who like to work with their hands. Graduates of the program should be eligible for positions as maintenance technicians or controls technicians in an automated manufacturing facility. Some of the titles might include maintenance technician, service engineer, robot programmer, and PLC programmer.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

**Program Courses**

**Credits**

|  |                              |
|--|------------------------------|
| <b>General Core Courses</b>                      | <b>Total 15 credit hours</b> |
| Area I Language Arts/Communication               | 3                            |
| ENGL 1101 Composition and Rhetoric (required)    |                              |
| Area II Social/Behavioral Sciences               | 3                            |
| Area III Natural Sciences/Mathematics            | 3                            |
| <i><b>(one of the following required)</b></i>    |                              |
| MATH 1101 Mathematical Modeling                  |                              |
| MATH 1111 College Algebra                        |                              |
| MATH 1103 Quantitative Skills and Reasoning      |                              |
| Area IV Humanities/Fine Arts                     | 3                            |
| General Education Core Requirement from any area | 3                            |

*Contact program advisor for program-specific courses and see General Education Requirements for Associate Degrees for course options.*

**Occupational Courses**

**Total 29 credit hours**

|   |   |
|---|---|
| AUMF 1120 Programmable Controllers          | 5 |
| AUMF 1140 Electrical Motor Controls         | 4 |
| AUMF 1150 Introduction to Robotics          | 3 |
| AUMF 1190 Fluid Power and Piping Systems    | 3 |
| COLL 1010 College and Career Success Skills | 3 |
| IDSY 1020 Print Reading and Problem Solving | 3 |
| IDSY 1170 Industrial Mechanics              | 4 |
| IDSY 1240 Maintenance for Reliability       | 4 |

**SCHOOL OF INDUSTRIAL TECHNOLOGY**

**Select one of the following specializations**

|                                   |      |   |                              |
|-----------------------------------|------|---|------------------------------|
| <b>Automated Control Systems</b>  |      |   | <b>Total of 17 hours</b>     |
| IDSY                              | 1130 | Industrial Wiring                                   | 4                            |
| AUMF                              | 1170 | AC/DC Circuit Fundamentals                          | 4                            |
| AUMF                              | 1220 | HMI's and Industrial Networking                     | 4                            |
| AUMF                              | 2060 | Work Cell Design Laboratory                         | 2                            |
| <b>OR</b>                         |      |   |                              |
| AUMF                              | 2210 | Smart Factory Networking and Sensors                | (4)                          |
| <b>AND</b>                        |      |   |                              |
| AUMF                              | 2500 | Manufacturing Operations Intern/Practicum           | 3                            |
| <b>OR</b>                         |      |   |                              |
| AUMF                              | 2200 | Mechatronic Systems Programming and Troubleshooting | (5)                          |
| <br><b>Industrial Maintenance</b> |      |   | <br><b>Total of 17 hours</b> |
| IDSY                              | 1130 | Industrial Wiring                                   | 4                            |
| AUMF                              | 1160 | Industrial Metalworking                             | 4                            |
| AUMF                              | 1170 | AC/DC Circuit Fundamentals                          | 4                            |
| AUMF                              | 2060 | Work Cell Design Laboratory                         | 2                            |
| AUMF                              | 2500 | Manufacturing Operations Intern/Practicum           | 3                            |

Estimated cost of books and supplies for full program is approximately \$2,000

**SCHOOL OF INDUSTRIAL TECHNOLOGY**

**Advanced Manufacturing Systems Technology Diploma (AMS2)**

*Offered at Currahee Campus*

Entrance Dates ..... Fall, Spring, Summer  
 Length of Program..... 4 Terms  
 Credit Hours Required for Graduation ..... 43

**Purpose:** The Advanced Manufacturing Systems Technology diploma program is designed around the changing skills demanded by area manufactures. The program provides learning opportunities that introduce, develop, and reinforce academic and technical knowledge, skills, and attitudes required for job acquisition, retention, and advancement. Additionally, the program provides opportunities to retrain or upgrade present knowledge and skills. The program teaches skills in industrial maintenance or automated control systems. The program is excellent for people who like to work with their hands. Graduates of the program should be eligible to work as maintenance technicians or controls technicians in an automated manufacturing facility. Some of the titles might include maintenance technician, service engineer, robot programmer, and PLC programmer.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

**Program Courses**

**Credits**

**Basic Skills Courses**

**Total 9 credit hours**

|      |      |                                   |   |
|------|------|-----------------------------------|---|
| COLL | 1010 | College and Career Success Skills | 3 |
| ENGL | 1010 | Fundamentals of English I         | 3 |
| MATH | 1012 | Foundations of Mathematics        | 3 |

**Occupational Courses**

**Total 22 credit hours**

|      |      |                                   |   |
|------|------|-----------------------------------|---|
| AUMF | 1120 | Programmable Controllers          | 5 |
| AUMF | 1140 | Electrical Motor Controls         | 4 |
| AUMF | 1150 | Introduction to Robotics          | 3 |
| AUMF | 1190 | Fluid Power and Piping Systems    | 3 |
| IDSY | 1020 | Print Reading and Problem Solving | 3 |
| IDSY | 1170 | Industrial Mechanics              | 4 |

**Select one of the following specializations**

**Automated Control Systems**

**Total of 12 hours**

|      |      |                                 |   |
|------|------|---------------------------------|---|
| IDSY | 1130 | Industrial Wiring               | 4 |
| AUMF | 1170 | AC/DC Circuit Fundamentals      | 4 |
| AUMF | 1220 | HMI's and Industrial Networking | 4 |

**Industrial Maintenance**

**Total of 12 hours**

|      |      |                            |   |
|------|------|----------------------------|---|
| IDSY | 1130 | Industrial Wiring          | 4 |
| AUMF | 1160 | Industrial Metalworking    | 4 |
| AUMF | 1170 | AC/DC Circuit Fundamentals | 4 |

Estimated cost of books and supplies for full program is approximately \$2,000.

**SCHOOL OF INDUSTRIAL TECHNOLOGY**

**Electrical Maintenance Technician Certificate (EM81)**

*Offered at Currahee Campus*

Entrance Dates ..... Fall  
 Length of Program..... 2 Terms  
 Credit Hours Required for Graduation ..... 18

**Purpose:** The Electrical Maintenance Technician certificate program provides instruction in industrial systems electrical inspection, maintenance, service, and repair. Topics include DC and AC fundamentals, motor controls, magnetic starters and braking systems, PLCs, and industrial wiring procedures.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

| <u>Program Courses</u> |      |                             | <u>Credits</u> |
|------------------------|------|-----------------------------|----------------|
| IDFC                   | 1011 | Direct Current              | 3              |
| IDSY                   | 1105 | AC Circuit Analysis         | 3              |
| IDSY                   | 1110 | Industrial Motor Controls I | 4              |
| IDSY                   | 1120 | Basic Industrial PLCs       | 4              |
| IDSY                   | 1130 | Industrial Wiring           | 4              |

Estimated cost of books and supplies for full program is approximately \$500.

**Electrical Systems Assistant Certificate (ESA1)**

*Offered at Currahee Campus*

Entrance Dates ..... Spring  
 Length of Program..... 1 Term  
 Credit Hours Required for Graduation ..... 11

**Purpose:** The Electrical Systems Assistant certificate program provides students with the occupational knowledge and skills necessary for entry-level employment as an electrician. Topics include mathematical applications, safety procedures, and direct and alternating current fundamentals.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

| <u>Program Courses</u>                         |      |                                  | <u>Credits</u> |
|--|------|----------------------------------|----------------|
| IDFC   | 1007 | Industrial Safety Procedures     | 2              |
| MATH   | 1012 | Foundations of Mathematics       | 3              |
| <b>Select one of the following DC courses:</b> |      |                                  |                |
| IDFC   | 1011 | Direct Current I                 | 3              |
| IDSY   | 1101 | DC Circuit Analysis              | (3)            |
| <b>AND</b>                                     |      |                                  |                |
| <b>Select one of the following AC courses:</b> |      |                                  |                |
| ELTR   | 1020 | Alternating Current Fundamentals | 3              |
| IDFC   | 1012 | Alternating Current I            | (3)            |
| IDSY   | 1105 | AC Circuit Analysis              | (3)            |

Estimated cost of books and supplies for full program is approximately \$500.

## SCHOOL OF INDUSTRIAL TECHNOLOGY

### Industrial Electrician Certificate (IE41)

*Offered at Currahee Campus*

|  |        |
|--|--------|
| Entrance Dates .....                       | Spring |
| Length of Program.....                     | 1 Term |
| Credit Hours Required for Graduation ..... | 10     |

**Purpose:** The Industrial Electrician certificate program prepares students for employment using basic electrical maintenance skills. Instruction is provided in the occupational areas of industrial safety, direct and alternating current principles, and industrial wiring.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

**Program Courses**

**Credits**

|  |     |
|--|-----|
| IDSY 1130 Industrial Wiring                    | 4   |
| <b>Select one of the following DC courses:</b> |     |
| IDFC 1011 Direct Current I                     | 3   |
| IDSY 1101 DC Circuit Analysis                  | (3) |
| <b>AND</b>                                     |     |
| <b>Select one of the following AC courses:</b> |     |
| ELTR 1020 Electrical Systems Basics I          | 3   |
| IDFC 1012 Alternating Current I                | (3) |
| IDSY 1105 AC Circuit Analysis                  | (3) |

Estimated cost of books and supplies for full program is approximately \$500.

### Industrial Fluid Power Technician Certificate (IF11)

*Offered at Currahee Campus*

|  |        |
|--|--------|
| Entrance Dates .....                       | Fall   |
| Length of Program.....                     | 1 Term |
| Credit Hours Required for Graduation ..... | 11     |

**Purpose:** The Industrial Fluid Power Technician Certificate Program prepares students to inspect, maintain, service and repair industrial mechanical systems, fluid power systems, and pumps and piping systems. Topics include safety procedures, mechanics, fluid power, and pumps and piping systems maintenance.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

**Program Courses**

**Credits**

|                                    |   |
|------------------------------------|---|
| IDSY 1170 Industrial Mechanics     | 4 |
| IDSY 1190 Fluid Power Systems      | 4 |
| IDSY 1195 Pumps and Piping Systems | 3 |

Estimated cost of books and supplies for full program is approximately \$200.

## SCHOOL OF INDUSTRIAL TECHNOLOGY

### Manufacturing Maintenance Mechanic Certificate (MA91)

*Offered at Currahee Campus*

|  |        |
|--|--------|
| Entrance Dates .....                       | Fall   |
| Length of Program.....                     | 1 Term |
| Credit Hours Required for Graduation ..... | 10     |

**Purpose:** The Manufacturing Maintenance Mechanic certificate provides students the opportunity to enter the workforce area of industrial maintenance with specializations in the areas of inspection, maintenance, service, and repair of industrial mechanical systems, fluid power systems, pumps, and piping systems. Topics include belt, gear and chain drive systems, speed reducers, transmissions, and various bearing installation, troubleshooting and repair, hydraulics and pneumatics, pumps, and piping system installation, troubleshooting and repair.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

| <u>Program Courses</u>                      | <u>Credits</u> |
|---|----------------|
| AUMF 1190 Fluid Power Systems               | 3              |
| IDSY 1020 Print Reading and Problem Solving | 3              |
| IDSY 1170 Industrial Mechanics              | 4              |

Estimated cost of books and supplies for full program is approximately \$200.

### Manufacturing Motor Controls Technician Certificate (MM81)

*Offered at Currahee Campus*

|  |        |
|--|--------|
| Entrance Dates .....                       | Fall   |
| Length of Program.....                     | 1 Term |
| Credit Hours Required for Graduation ..... | 12     |

**Purpose:** The Manufacturing Motor Controls Technician certificate will provide students with the opportunity to enter the workforce area of industrial maintenance with specialized skills in the areas of electrical applications and maintenance of industrial motor controls. Topics include AC and DC theory, application and motors, circuits, manual and automatic controls, variable speed motor controls and other applications of industrial wiring.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

| <u>Program Courses</u>              | <u>Credits</u> |
|-------------------------------------|----------------|
| AUMF 1170 ACDC Circuit Fundamentals | 4              |
| AUMF 1140 Electrical Motor Controls | 4              |
| IDSY 1130 Industrial Wiring         | 4              |

Estimated cost of books and supplies for full program is approximately \$200.

**SCHOOL OF INDUSTRIAL TECHNOLOGY**

**Manufacturing Programmable Controls Technician Certificate (MPC1)**

*Offered at Currahee Campus*

Entrance Dates ..... Fall  
 Length of Program..... 1 Term  
 Credit Hours Required for Graduation ..... 9

**Purpose:** The Manufacturing Programmable Motor Controls Technician certificate provides students with the opportunity to enter the workforce area of industrial electro-mechanical maintenance specifically in areas of automated applications. Instruction is provided using industry standard equipment and industry recognized programming platforms. Topics include: ladder, function block and structured text programming, applications of industrial networking, focuses on network security, remote input and output devices and navigating software for troubleshooting and repair.

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores

**Program Courses**

**Credits**

|   |   |
|---|---|
| AUMF 1120 Programmable Controllers        | 5 |
| AUMF 1220 HMI's and Industrial Networking | 4 |

Estimated cost of books and supplies for full program is approximately \$200.

**SCHOOL OF INDUSTRIAL TECHNOLOGY**

**Robotic Technician Certificate (RT41)**

*Offered at Currahee Campus*

Entrance Dates ..... Fall  
 Length of Program..... 2 Terms  
 Credit Hours Required for Graduation ..... 20

**Purpose:** The Robotic Technician Certificate Program is designed for the students who wish to enhance their automation skills for employment at companies who have robots. The program provides learning opportunities that introduce, develop and reinforce academic and technical knowledge skill. This certificate is designed for students or employees who have a background in Industrial Electronics which includes industrial wiring, motors, controls, PLCs, instrumentation, and computers. Graduates of the certificate program received a Robotic Technician certificate that qualifies them for employment as robotic automation technician. Graduates will be eligible to test for Fanuc Robotics Certification

**Admission Requirements:**

- Age 16 or older or student with dual/joint enrollment in high school or GED® students seeking access to quality instruction at the postsecondary level
- High school diploma or GED®
- Completion of application process including placement test; or provide SAT or ACT scores
- Must possess industrial control skills including working with PLCs; or prior learning assessment is required for prerequisite skills acquired through education and/or experience.

**Program Courses**

**Credits**

|      |      |                              |   |
|------|------|------------------------------|---|
| AUMF | 1150 | Introduction to Robotics     | 3 |
| AUMF | 2060 | Work Cell Design Laboratory  | 2 |
| IDSY | 1120 | Basic Industrial PLCs        | 4 |
| IDSY | 1190 | Fluid Power Systems          | 4 |
| IDSY | 1195 | Pumps and Piping Systems     | 3 |
| IDSY | 1220 | Intermediate Industrial PLCs | 4 |

Estimated cost of books and supplies for full program is approximately \$600.