

Applied Mechatronics

Career Studies Certificate

Program Coordinator: Donnie Melvin • dmelvin@vhcc.edu • 276-739-2453

Length: Two Semesters

Purpose: This program is intended for students with an electrical background. Those who complete the program have the skills to work as a Mechatronics Entry Level Maintenance Technician's Helper or Industrial Machine Operator.

| Course Number | Course Title | Lecture Hours | Lab Hours | Credits |
|-----------------------------------------------------|---------------------------------------------|---------------|-----------|-----------|
| First Semester (Fall) | | | | |
| ELE 157 | Electricity Fundamentals | 3 | 6 | 6 |
| MEC 140 | Introduction to Mechatronics | 2 | 2 | 3 |
| SAF 130 | Industrial Safety – OSHA 10 | 1 | 0 | 1 |
| Total | | 6 | 8 | 10 |
| Second Semester (Spring) | | | | |
| IND 243 | Principles and Applications of Mechatronics | 2 | 2 | 3 |
| ITE 100/ETR 166 | Introduction to Information Systems | 3 | 0 | 3 |
| ELE 141 | DC and AC Machines | 3 | 3 | 4 |
| Total | | 8 | 5 | 10 |
| Total Credits for Career Studies Certificate | | | | 20 |

Advanced Mechatronics

Career Studies Certificate

Program Coordinator: Donnie Melvin • dmelvin@vhcc.edu • 276-739-2453 **Length:** Three Semesters

Purpose: This program is intended for students with electrical and/or automation background. Those who complete the program have the skills to work as a Mechatronics Entry Level Maintenance Technician or Senior Level Industrial Machine Operator.

Students must complete the Applied Mechatronics Career Studies Certificate prior to enrollment in the Advanced Mechatronics Career Studies Certificate unless the Program Coordinator grants approval.

| Course Number | Course Title | Lecture Hours | Lab Hours | Credits |
|-----------------------------------------------------|---------------------------------------------|---------------|-----------|-----------|
| First Semester (Fall) | | | | |
| MEC 161 | Hydraulics and Pneumatics | 2 | 2 | 3 |
| ELE 233 | Programmable Logic Controllers 1 | 2 | 2 | 3 |
| ELE 245 | Industrial Wiring | 2 | 2 | 3 |
| Total | | 6 | 6 | 9 |
| Second Semester (Spring) | | | | |
| INS 232 | Systems Troubleshooting | 2 | 3 | 3 |
| ELE 175 | Industrial Solid State Devices and Circuits | 2 | 2 | 3 |
| ELE 234 | Programmable Logic Controllers 2 | 2 | 2 | 3 |
| ELE 225 | Electrical Control Systems | 3 | 3 | 4 |
| Total | | 9 | 10 | 13 |
| Third Semester (Summer) | | | | |
| ELE 132 | National Electric Code 2 | 2 | 2 | 3 |
| WEL 110 | Welding Processes | 2 | 3 | 3 |
| Total | | 4 | 5 | 6 |
| Total Credits for Career Studies Certificate | | | | 28 |