

Mechatronics and Advanced Manufacturing Technology: Diploma

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| Faculty of Trades and Technology | kpu.ca/trades |
| Mechatronics | kpu.ca/trades/mamt |
| Program Type | Undergraduate |
| Credential Granted | Diploma Certificate |
| Offered At | Cloverdale |
| Start Date(s) | September |
| Intake Type | Limited intake |
| Format | Full-time |
| Instructional Cycle | Semester-based |
| Curriculum Effective Date | 01-Sep-2018 |
| How to Apply | www.kpu.ca/admission |

DESCRIPTION

The Mechatronics and Advanced Manufacturing Technology program prepares graduates for careers in the manufacturing industry. With growing reliance on automated technology in the manufacturing sector, technicians are being challenged to perform higher-level tasks that involve diagnostics, analytics, trouble-shooting and hands-on maintenance and repair. Students will acquire critical theoretical and technical knowledge, and hands-on practical experience in applied trades areas such as machining, welding, metal fabrication and electrical. In addition to these skills, students in this program will acquire the knowledge to enable them to prepare technical reports pertaining to the operation and management of an automated manufacturing facility.

The program supports applied research, product development and commercialization solutions. The program also includes the most current technology in computer numerical control (CNC) programming, renewable energy, and computer controlled autonomous systems; hydraulic, pneumatic, electronic and robotic.

Semesters 1 and 2 are aligned to the internationally recognized Siemens Mechatronic Systems Certification (SMSC) program and provide certificate graduates with the opportunity to obtain Siemens Mechatronic Systems Certification Levels 1 and 2. Certificate graduates from the Mechatronics and Advanced Manufacturing Technology program will be equipped with the knowledge, expertise and skills to operate, maintain, and conduct diagnostics on mechatronic systems at a technician level.

Semesters 3 and 4 incorporate advanced manufacturing principles; sustainability practices, engineering resource planning, lean manufacturing practices, communications and business operations. These principles are augmented by experiential skill development in machining, metal fabrication, welding and electrical which will prepare graduates to meet the demands of the emerging trend known as "Industry 4.0". Graduates from the Mechatronics and Advanced Manufacturing Technology program will be well prepared to work in numerous occupations in the engineering technician/technologist fields.

ADMISSION REQUIREMENTS

In addition to the Faculty's Undergraduate Admission Requirement, which consists of KPU's Undergraduate English Proficiency Requirement, the following program admission requirements apply:

- Satisfy the Math requirement at Level E1 of the Mathematics Alternatives Table; and
- Successful completion of Physics 11 (or equivalent).

OR

- A Red Seal Endorsement (RSE) from the list of approved RSEs. The list of approved RSEs can be found on the department website at kpu.ca/trades/mechatronics

Advanced Standing

Students admitted to the program may be eligible for advanced standing based on transfer credit and/or Prior Learning Assessment (PLA).

CURRICULAR REQUIREMENTS

SEMESTER 1

All of:

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| MAMT 1100 | Electrical Components | 4 credits |
| MAMT 1110 | Mechanical Components and Electrical Drives | 3 credits |
| MAMT 1120 | Electro-pneumatic and Hydraulic Control Circuits | 4 credits |
| MAMT 1130 | Digital Fundamentals and Programmable Logic Controllers (PLC) | 4 credits |

SEMESTER 2

All of:

| | | |
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| MAMT 1200 | Process Control Technologies | 2 credits |
| MAMT 1210 | Integrated Automation and Automation Systems | 6 credits |
| MAMT 1220 | Motor Control and Mechanical Systems | 5 credits |
| MAMT 1230 | Manufacturing Processes | 2 credits |

Upon successful completion of Semesters 1 and 2 (30 credits), students are eligible to exit the program and receive a Certificate.

SEMESTER 3

All of:

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| CADM 1155 | Manufacturing Design and Software | 4 credits |
| MAMT 1300 | Manufacturing Trends and Technology | 4 credits |
| WELD 1300 | Welding and Metal Fabrication Essentials | 4 credits |

One of:

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|-----------|---------------------------------------|-----------|
| CMNS 1115 | Writing for the Specialized Workplace | 3 credits |
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| ENGL 1100 * | Introduction to University Writing | 3 credits |
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* required for a KPU bachelor's degree

SEMESTER 4

All of:

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| BUSI 1210 | Essentials of Management | 3 credits |
| ELEC 1300 | Electrical Design and Renewable Energy | 4 credits |
| MAMT 1400 | Professional Skills and Work Practicum | 4 credits |
| MILL 1300 | Machining and Computer Numerical Control (CNC) Programming | 4 credits |

OTHER INFORMATION

In addition to the usual textbook and personal protective equipment costs, the Mechatronics and Advanced Manufacturing Technology program is delivered utilizing a laptop lease program. Students should factor in this annual cost of approximately \$1,100-\$1,300 that is to be paid at the beginning of the Academic Year and is non-refundable. Most of the course material is housed online and laptops are equipped with the requisite software to complete course deliverables. Students are advised NOT to purchase a personal laptop computer as all required equipment, software, and technical support services will be supplied by KPU.

CREDENTIAL AWARDED

Upon successful completion of this program, students are eligible to receive a **Diploma in Mechatronics and Advanced Manufacturing Technology**.

Upon successful completion of the requirements for Semesters 1 and 2, students are eligible to receive a **Certificate in Mechatronics and Advanced Manufacturing Technology**.