

# Mechatronics and Advanced Manufacturing Technology: Diploma

<b>Faculty of Trades and Technology</b>	kpu.ca/trades
<b>Mechatronics</b>	kpu.ca/trades/mamt
<b>Program Type</b>	Undergraduate
<b>Credential Granted</b>	Diploma Certificate
<b>Offered At</b>	Cloverdale
<b>Start Date(s)</b>	September
<b>Intake Type</b>	Limited intake
<b>Format</b>	Full-time
<b>Instructional Cycle</b>	Semester-based
<b>Curriculum Effective Date</b>	01-Sep-2018
<b>How to Apply</b>	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
- Successful completion of Physics 11 (or equivalent)

### Advanced Standing

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

On November 26, 2018 changes to the admission requirements for this program were approved by Senate. Effective September 2019 the following conditions will 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](http://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).

These changes will appear in the 2019-20 University Calendar to be published in June 2019.

## CURRICULAR REQUIREMENTS

### SEMESTER 1

#### All of:

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:

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:

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:

CMNS 1115	Writing for the Specialized Workplace	3 credits
ENGL 1100 *	Introduction to University Writing	3 credits

\* required for a KPU bachelor's degree

## SEMESTER 4

### All of:

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**.