ROBOTICS AND MECHANICAL ENGINEER

What do they do?

Robotics Engineers design, build, and maintain robots and automated systems that improve efficiency and precision across industries such as manufacturing, healthcare, aerospace, and logistics. Their work involves blending mechanical, electrical, and computer engineering principles to create innovative solutions that can perform tasks ranging from simple repetitive functions to complex autonomous operations.

Summary of Duties

- Design and develop robotic systems and components
- Integrate mechanical, electrical, and software systems
- Test, troubleshoot, and validate robotic prototypes
- Implement control systems and automation technologies
- Collaborate with cross-disciplinary teams (mechanical, electrical, software)
- Apply safety, quality assurance, and regulatory standards

Employment, Wages & Skills

Starting	Average	Experienced
$30/hr	$46.41/hr	$65+/hr

Employment Requirements

- A bachelor's degree in mechanical engineering, robotics engineering, or a related field
- A master's or doctoral degree may be required for research or teaching roles
- Licensing by a provincial or territorial engineering association is required to practice as a Professional Engineer (P.Eng.)
- Experience with CAD/CAM, control systems, and programming languages (C++, Python, MATLAB) is an asset
- Co-op or internship experience in robotics, automation, or mechanical systems is often preferred

Skills You'll Build

- Advanced design and problem-solving in robotics
- Integration of mechanical, electrical, and software systems
- Control systems, automation, and programming
- Prototyping, testing, and validation of robotics solutions
- Project management and teamwork
- Innovation in AI and autonomous technologies

A Day in the Life

A Robotics Engineer's day often begins with reviewing design requirements and collaborating with other engineers. They spend time creating and refining CAD models, running simulations, and working on prototypes. Much of the day is also spent troubleshooting system issues, testing robotic components, and validating performance against project goals. Collaboration with software developers, manufacturers, and clients is common to ensure robots meet both technical specifications and user needs.

Why Choose This Career?

- Be at the forefront of technological innovation
- Wide range of industries to work in (manufacturing, healthcare, aerospace, logistics)
- High earning potential and strong demand for expertise
- Opportunities to specialize in AI, automation, or mechatronics
- Contribute to advancements that shape the future of work and society

Certification & Training

- Bachelor's degree in mechanical, robotics, or mechatronics engineering
- Optional postgraduate specialization in robotics, AI, or automation
- Professional Engineer (P.Eng.) license required in Canada for regulated roles
- Training in CAD/CAM, control systems, and robotics programming languages
- Certifications in robotics software/hardware platforms (ROS, PLC, industrial automation systems)

Next Steps for High School Graduates:

- Focus on STEM courses: physics, math, and computer science
- Join robotics clubs, competitions, or makerspaces to gain hands-on experience
- Explore co-op programs to gain industry experience during school
- Apply to a university program in mechanical, robotics, or mechatronics engineering

Robotics / Mechanical Engineer Education Pathway

Institution	Program	Credential & Duration	Key Focus Areas
University of Toronto	Robotics Engineering (EngSci)	4-year honours degree	Robotics design, mobile robotics, control systems, AI, and system integration
University of Windsor	Mechanical Engineering with Materials Option	4-year BASc (co-op option)	Machine design, CAD/CAM, materials (metals, polymers, composites)
Ontario Tech University	Mechatronics Engineering	4-5 years	Electro-mechanical systems, robotics, real-time control, automation
St. Clair College	Electromechanical Engineering Technology - Robotics	Ontario College Diploma	Industrial robot programming, PLCs, machine vision, mechanical & electrical systems