COURSE OUTLINE 2025-2026

COURSE INFORMATION			
Course Name:	Machine Tools 1		
Course Code:	MANU 1000		
School/Dept:	Applied Science, Skills and Technology		
Program(s):	Mechanical Techniques; Manufacturing Engineering Technician; Electronmechanical Engineering Technician - Mechatronics;		
Prerequisite(s):	**Co- requisite(s):**		**Equivalent Course(s):**
Total Course Hours: 42	**Class Hrs:** 14	**Lab/Sim Hrs:** 28	**WIL Hrs:** 0
PLAR Eligible:	Yes Challenge Exam- Written		
Developed by:	Jeremy Braithwaite		**Date:** 2025-05-02
Revised by:	Ian Bertling		**Date:** 2025-09-05
Reviewed by:	Jeremy Braithwaite; Jeremy Braithwaite; Erich Glinker;		**Date:**
Approved by:	Barb Allen		**Date:** 2025-09-08
Signature: 			

LAND AFFIRMATION

Loyalist College is built upon the lands governed by the Dish with One Spoon wampum agreement. We affirm and thank the Haudenosaunee, Anishinaabeg, and Huron-Wendat nations for their continued caretaking of the land. We offer respect to Indigenous people from all nations who call this area home. We honour traditional knowledge keepers, past, present, and future.

FACULTY CONTACT INFORMATION

See course in LMS for faculty contact information.

COURSE DESCRIPTION
Students will learn the basics of metal cutting using various machine shop tools including engine lathes, milling machines, drill presses, grinders, as well as various hand tools. Shop safety aspects and principles of metal cutting are discussed.

VOCATIONAL/PROGRAM LEARNING OUTCOMES- The graduate has reliably demonstrated the ability to:		
Program Code	**VLO #**	**VLO Description**
MECH	1	Complete all work in compliance with current legislation, standards, regulations and guidelines.
MCDS	1	fabricate and build electrical, electronic, and mechanical components and assemblies in accordance with operating standards, job requirements, and specifications
MANU	2	Conduct routine analysis * of components, processes, and systems through the application of engineering principles * and practices.
MCDS	2	interpret and produce electrical, electronic, and mechanical drawings and other related technical documents and graphics for a variety of stakeholders in compliance with industry standards
MECH	3	Comply with current health and safety legislation, as well as organizational practices and procedures.
MANU	3	Interpret and prepare graphics * and other technical documents * to appropriate engineering standards.
MCDS	3	select and use a variety of troubleshooting techniques and equipment to assess, maintain, and repair electromechanical circuits, equipment, processes, systems, and subsystems
MCDS	4	maintain and repair electrical, electronic, and mechanical components, equipment, and systems to ensure that they function according to specifications and to optimize production
MANU	5	Apply knowledge of manufacturing materials, operations, and processes to support the production of components.
MCDS	5	support the design and production of mechanical components by assisting in the specification of manufacturing materials and processes
MANU	6	Apply knowledge of machinery, tools and other equipment to manufacture and assemble components.
MCDS	6	apply, analyze, build, install, commission, and troubleshoot a variety of mechanical, electrical, and electronic control systems, logic and digital circuits, passive AC and DC circuits, and active circuits
MANU	7	Conduct quality control and quality assurance procedures as required.
MANU	10	Contribute to the implementation of a manufacturing project.

MANU	11	Develop strategies and plans to improve job performance and work relationships.

ESSENTIAL EMPLOYABILITY SKILLS – This course will contribute to the achievement of the following:	
Taught and Assessed	**Essential Employability Skills**
X	1: Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
X	2: Respond to written, spoken, or visual messages in a manner that ensures effective communication.
X	4: Apply a systematic approach to solve problems..
X	6: Locate, select, organize, and document information using appropriate technology and information systems.
X	7: Analyze, evaluate, and apply relevant information from a variety of sources.

COURSE LEARNING OUTCOMES – Upon successful completion of the course, the student will be able to:			
CLO #	**Course Learning Outcome**	**VLO**	**EES**
CLO 1	Complete all work in accordance with organizational health and safety practices and procedures.	MECH: 1; MANU: 2; 3; 5; 6; 7; 10; MCDS: 1;	4; 7;
CLO 2	Select, and use appropriate measuring instruments to inspect machined components	MECH: 3; MANU: 2; 3; 5; 6; 7; 10; MCDS:	2; 6;
CLO 3	Identify the technical criteria necessary to manufacture mechanical components.	MECH: 3; MANU: 2; 3; 5; 6; 7; 10; MCDS: 3;	1; 7;
CLO 4	Select appropriate work holding methods for the production of mechanical components.	MECH: 3; MANU: 2; 3; 5; 6; 7; 10; MCDS: 3;	2; 6;
CLO 5	Select and utilize the appropriate cutting tool for the production of mechanical components.	MECH: 3; MANU: 2; 3; 5; 6; 7; 10; MCDS: 3;	2; 6;
CLO 6	Identify the components of common machine tools.	MECH: 3; MANU: MCDS: 3;	1; 7;
CLO 7	Demonstrate professionalism by keeping the lab area clean and return the tools that were used during class to their proper spot in the tool crib	MECH: 1; MANU: 2; 3; 5; 6; 7; 10;	1; 4; 7;

		MCDS: 3;	

LEARNING MATERIALS
Details about the current costs of the recommended and required textbooks ae available at the Loyalist College Bookstore. This includes options for purchasing new or used textbooks, as well as digital versions, if available. **Textbooks/Open Educational Resources:** REQ: 9780130358370: Machine Tool Practices, Kibbe, Richard R., Pearson/Prentice Hall **Course Materials and Supplies:** See the program manual for general safety and technical materials for participation in the program. **Other:** Check the LMS for any other relevant materials.

ASSESSMENT – Students will demonstrate learning in the following ways: CLO = Course Learning Outcome(s) EES = Essential Employability Skill(s)			
Assessment Type	**CLO**	**EES**	**Weighting (%)**
Quizzes	3; 5; 6;	1; 2;	30%
Lathe Project	1; 2; 3; 5;	2; 7;	35%
Mill Project	1; 2; 3; 4; 5;	1; 2; 6;	35%

COURSE DELIVERY PLAN **Subject to Change					
Module Title	**Module Learning Objective/ Elements of Performance**	**CLO**	**EES**	**Learning Activities/Resources**	**Notes**
Week 1	How to use precise measuring tools Convert imperial to metric	3;	2;	Instructor lead demonstration In Lab Practical	
Week 2	Operate a Lathe safely Components of a lathe	2; 4; 6; 7;	4; 6; 7;	Instructor lead demonstration In Lab Practical	
Week 3-4	Turning on a lathe to a precise measurement Lab Work on Lathe	4; 5; 6; 7;	1; 4;	Instructor lead demonstration In Lab Practical	
Week 5	Geometry of inserts Lab Work on Lathe	4; 5;	2;	Instructor lead demonstration In Lab Practical	
Week 6	Parts of a Vertical Mill Proper tools for the mill	5;	7;	Instructor lead demonstration In Lab Practical	
Week 7-8	Safe Operation of a Mill	5; 6;	2;	Instructor lead demonstration In Lab Practical	
Week 9-10	Indicating vices Dial Indicators Edge Finders	2; 3; 4; 5; 6; 7;	4; 6;	Instructor lead demonstration In Lab Practical	
Week 11-12	How to Drill safely Changing inserts on a cutter	2; 3; 4; 5; 6; 7;	4;	Instructor lead demonstration In Lab Practical	
Week 13	Removing Sharp Edges Deburring Tools	2; 3; 4; 5; 6; 7;	1; 2;	Instructor lead demonstration In Lab Practical	
Week 14	Complete Projects	2; 3; 4; 5; 6; 7;	4; 6;	Instructor lead demonstration In Lab Practical	

COLLEGE POLICIES

Loyalist College policies and procedures are available online on the college website. Please review the college website for specific policies that might be related to this course.

Important dates, including withdrawal and other deadlines, are available through the Loyalist College Academic Calendar.

PROGRAM SPECIFIC GUIDELINES

Please review your program handbook in the LMS for details or reach out to your program coordinator for more information.

Tsi Titewaya'taró:roks INDIGENOUS CENTRE

The Tsi Titewaya'taró:roks Indigenous Centre is available for all students who self-identify as Indigenous (First Nation, Métis, Inuit). Named by the students in Kanyen'kehà (Mohawk language), the English translation is "the place where we gather as a family". The centre offers holistic supports including academic counselling, cultural activities and teachings, and weekly lunch and learns. The Centre's team is fully committed to supporting all students who self-identify as Indigenous as well as support Loyalist staff in upholding the Calls to Action stemming from the Truth and Reconciliation Commission. Students may self-identify by stopping by the Centre (located in 3H9) or filling out the Declaration page in the MyLoyalist portal.

EQUITABLE LEARNING/ACCOMODATIONS

Students requiring accommodation for this course or additional supports at Loyalist College are encouraged to contact Equitable Learning. A wide range of services are available including:

- Academic Centre for Testing
- Accessibility Services
- Counselling Services
- Student Advisors
- Tutoring Services
- Health Centre

To book an appointment, please contact advising@loyalistcollege.com.