



MASTER COURSE OUTLINE

A. ARET 2200 Robotics Operations

B. COURSE DESCRIPTION:

This course is intended for an operator, technician, engineer or programmer who may need to setup, modify, record and run a program on a robot system. This course covers Handling Tool Operations. Students will program, setup and operate the robots and end-of-arm-tooling. The Teach Pendant will be taught and utilized for programming and jogging the robot. Students will set up applications, write basic programs, and test them. These are the entry level skills a student should have to enter the fields of Mechatronics and Packaging. Prerequisite: ARET 1200.
(2 Cr – 1 lect, 1 lab)

C. *Core Theme: Critical Thinking

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):

- ILO 1: critical thinking (*Core Theme Goal 2*)
- ILO 2: awareness of the larger global community (*Core Theme Goal 7 or 8*)
- ILO 3: ethical, engaged citizenship (*Core Theme Goal 9 or Goal 10*)
- ILO 4: communication and collaboration (*Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration*)

E. MAJOR CONTENT AREAS:

- Model safely jogging a robot
- Construct tool frames
- Construct user frames
- Create and edit programs
- Explain how to actuate I/Os (input/output)
- Use branching logic with IO/Registers
- Use Position Registers

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

<u>GOAL TYPE</u>	<u>OBJECTIVES</u>	<u>OUTCOMES</u>
	Students will be able to	The student will successfully
<u>*Critical Thinking</u>	gather factual information and apply it to a given problem in a manner that is relevant,	1. analyze an effective programmable model to move robotic arm.

	clear, comprehensive, and conscious of possible bias in the information selected.	2. critique position registers.
<u>CS</u>	define reasoning-jogging the robot.	1. model safely jogging a robot.
<u>CS</u>	define set-up applications.	1. construct tool frames. 2. construct user frames. 3. create and edit programs.
<u>CS</u>	recognize proper robotic arm positioning.	1. articulate proper robotic arm positioning techniques. 2. explain how to actuate I/Os (input/output).

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

H. COURSE CODING INFORMATION:

Course Code S/Class Maximum 24; Letter Grade

Revision date: 04/02/26

AASC Approval date: 02/15/22; 05/12/26

*These five MnTC Goals have been identified as Riverland Community College Core Themes. Every course in the Riverland Community College curriculum shall meet outcomes from one of these themes.

**These five MnTC Goals have been identified as Riverland Community College Disciplines. Riverland's MnTC courses also shall meet outcomes from a Discipline Area.

NOTE: The Minnesota Transfer Curriculum "10 Goal Areas of Emphasis" are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

*Riverland Community College Core Themes	MnTC Goal Number
Critical Thinking (CT)	2
Human Diversity (HD)	7A, 7B, 7A/B
Global Perspective (GP)	8
Ethical and Civic Responsibility (EC)	9
People and the Environment (PE)	10

**Riverland Community College Discipline Areas	MnTC Goal Number
Communication (CM)	1
Natural Sciences (NS)	3
Mathematics/Logical Reasoning (MA)	4
History and the Social & Behavioral Sciences (SS)	5
Humanities and Fine Arts (HU)	6

Riverland