



## 2024 Alberta Provincial Skills Autonomous Competition

Please see this attached Addendum file to reference a previous year on-site autonomous competition (2024SkillsAutonomousFinal.pdf) noting that this years on site autonomous competition will vary and teams should practice a variety of situations, objects, movement and pick and placement types.

## I. Competition Table Design

- a. The Competition Table provided will be the “Alberta Provincial Standard Autonomous Competition Table”
- b. The Competition Table shall be defined as a smooth white  $\frac{3}{4}$ ” melamine surfaced table measuring 36” wide x 72” long.
- c. The Competition Table will be backed by a frame of standard 2x4’s
- d. The Competition Table will be surrounded on all sides by a 2x6 walls to prevent robots from leaving the bounds of the table.
- e. The Competition Table will have legs to raise it to an appropriate working height of 36”

## II. Competition Table Rules

- a. One Competition table will be provided at the Alberta Skills Provincial Competition.
- b. An additional practice table will be available but may not exactly replicate the official Competition Table.
- c. Team practice using these tables will be limited only by the availability of the tables.
- d. Once a team is ready, they can signal to the judges that they wish to score this attempt for points. Once declared, teams are constrained to the time limits for that section. **A judge must be present for the attempt in order to count as a scored attempt.**
- e. Teams are allowed to score 3 attempts. Their best score will be counted in their autonomous total.
- f. Once a team has scored 3 attempts, they will no longer be allowed to practice on the autonomous court. This allows for all teams to have a chance to practice and score their attempts.
- g. If a team is happy with their score after the first or second attempt, they are not obligated to score a further attempt.
- h. There will be NO PLAYOFFS in the autonomous competition. Final standing will be based on the total of the best score in each the task to a maximum of 39 points.
- i. All attempts must be completed by 4:00pm on Thursday, May 9, 2024.



## IV. 2024 Autonomous Competition Description

- a. Bridge Repair: You are working on a design for a new robot that will allow bridge components to be replaced autonomously to protect the safety of workers. You will pick up the “steel pieces” from the bridge yard, deliver them through the job site avoiding hazards and place them into the “bridge build” zone.
- b. “Bridge pieces” are denoted as a 2” x 2” foam cube wrapped in a single layer of grey duct tape.
- c. Robots may only be in possession of one “bridge piece” at a time.
- d. Robots must cross through all zones consecutively on delivery of the first bridge piece and must pass through zone 6 while returning from the first delivery. After all zones are passed through once, this requirement is removed, and the autonomous robot can navigate via the path of its choosing.
- e. After completing delivery of all 3 bridge pieces, the robot should return to the “starting zone”.

## V. General Autonomous Robot Ruleset

- a. Autonomous robots may occupy a total space no more than 2,744 cubic inches at the start of a task run.
- b. The robot’s starting position can be anywhere inside the “starting zone”. The robot may not breach the tape line or court perimeter on any border.
- c. Blue electrical tape lines identify the foam piece positions and destination zones.
- d. For autonomous robots that utilize a line follower to orient themselves, a central black electrical tape line is used to help guide robots.
- e. Autonomous robots must never breach the tape line of a dead zone (denoted by red electrical tape, striped diagonally) as they are considered obstacles and impassable. Doing so will result in a reduction in scoring attempt points.

2024 Autonomous Scoring

Team Name: \_\_\_\_\_

Name	Description	Point Value	Attempt 1	Attempt 2	Attempt 3
<b>Object Delivery Points (15 POINTS)</b>					
<b>Bridge Piece 1</b>	Delivered successfully?	5			
<b>Bridge Piece 2</b>	Delivered successfully?	5			
<b>Bridge Piece 3</b>	Delivered successfully?	5			
<b>Zone Points (11 POINTS)</b>					
<b>Drive Zone 1</b>	Was it entered?	1			
<b>Drive Zone 2</b>	Was it entered?	1			
<b>Drive Zone 3</b>	Was it entered?	1			
<b>Drive Zone 4</b>	Was it entered?	1			
<b>Drive Zone 5</b>	Was it entered?	1			
<b>Drive Zone 6</b>	Was it entered?	1			
<b>Consecutive Order</b>	Zones entered in consecutive order during the first piece delivery?	3			
<b>Bridge Yard</b>	Was it entered?	1			
<b>Bridge Build</b>	Was it entered?	1			
<b>Miscellaneous Points (4 POINTS)</b>					
<b>Return Home</b>	Did you return to the starting zone?	1			
<b>No Dead Zones</b>	No touching of dead zones.	3			
<b>Time Points (9 POINTS)</b>					
<b>Under 4 Minutes</b>	Task completed in under 4 minutes?	3			
<b>Under 3 Minutes</b>	Task completed in under 3 minutes?	3			
<b>Under 2 Minutes</b>	Task completed in under 2 minutes?	3			
<b>Total Attempt Points</b>			/39	/39	/39

Team Member Signature		Judge Signature	
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