ACTE: Individual/Group Robotics B Rubric

DIRECTIONS
1. Ask the student/group for the **printed portfolio**. Digital or electronic portfolios are not accepted. Allow no more than 5 minutes for project setup and score the printed portfolio during setup.
2. Robotics B evaluates both the **engineering/build process** and student-created **drag-and-drop/block or written programming**. A purchased kit is permitted, but judges must distinguish a predesigned build from original design, modification, and creative engineering. Confirm that the robot design, build decisions, programming, and documentation are student-created. **AI-generated designs, code, or production assets are prohibited.** If suspected or disclosed, pause scoring and refer the entry to ACTE staff.
3. Allow no more than 10 minutes for the project presentation. The student may choose which portion of a larger body of work to show.
4. Judges may ask questions for no more than 5 minutes and are not limited to the topics listed in the rubric.
5. Enter a score for every criterion. Add the /30 portfolio score and /70 project/presentation score for the /100 final score, then initial page 2.

PRINTED PORTFOLIO CHECKLIST			Points
Online Orientation Certificate	**0** Certificate is missing.	**10** Certificate is printed and placed as page 1 of the portfolio.	
Printed Portfolio	**0** No printed portfolio is submitted, or only a digital/electronic portfolio is provided.	**10** A complete printed portfolio is submitted at judging. Digital portfolios are not accepted.	
Required Portfolio Sections	**0** Required printed portfolio sections are not provided.	**10 - Printed portfolio includes these 9 sections:** 1. Online Orientation Certificate (first page) 2. Project identification page: student name(s), school, category, level, and region 3. Table of contents 4. Project narrative: purpose, learning, and benefit 5. Software and hardware used 6. Problem/challenge statement, criteria and constraints, research, kit/source identification, concept sketches, design options, selected design, diagrams, parts list, build plan, and programming plan 7. Build-stage photographs, modifications from the kit design, representative block or written code, test procedures/data, failures, debugging notes, redesigns, revisions, and final-performance evidence 8. Works cited/bibliography and credits for kit instructions, sample designs, code libraries, tutorials, media, datasets, and other sources 9. Signed statement that the robot design/build decisions, programming, documentation, and production assets are student-created and contain no AI-generated content or assets	

Judges Printed Portfolio Checklist Score	**/30**

This section is valued at 30 points total.

ROBOTICS B PROJECT & ORAL PRESENTATION RUBRIC

Select the score range that best matches the demonstrated level. Enter one numeric score from 0-10 for each criterion.

PROJECT					Points
Engineering Problem, Criteria & Design Process					
0 No identifiable problem, criteria, constraints, research, design plan, or engineering process.	**1-3** Problem and requirements are unclear; little evidence of research, planning, or design-process steps is provided.	**4-6** A basic problem and plan are evident, but criteria, constraints, options, rationale, or documentation is incomplete.	**7-9** Clear problem, criteria, constraints, research, design options, reasoned selection, and build/program plan are documented.	**10** Exceptional process defines the problem, compares alternatives, justifies decisions, and documents a purposeful original solution.	
PROJECT					**Points**
Robot Design, Construction, Creativity & Customization					
0 No completed robot or construction evidence can be evaluated.	**1-3** Robot follows a purchased kit or predesigned model with minimal student modification, creativity, or build understanding.	**4-6** Robot is competently assembled from a kit with limited original changes; construction quality or customization is uneven.	**7-9** Well-built robot uses purposeful original modifications, component choices, layout, mechanisms, or structure to improve the design.	**10** Highly original robot transforms kit components or uses a student-created design with exceptional creativity, craftsmanship, and function.	
PROJECT					**Points**
Programming Logic, Control & System Integration					
0 No functioning student-created block or written program is provided.	**1-3** Programming is mostly prebuilt, copied without understanding, incomplete, or poorly integrated with the robot.	**4-6** Student-created code controls basic functions, but logic, organization, motors/sensors, calibration, or integration is uneven.	**7-9** Well-organized block or written code uses effective logic, controls, motors/sensors, and calibration to integrate the robot.	**10** Exceptional programming shows advanced logic, maintainability, precise control, strong sensor integration, efficiency, and autonomy.	
PROJECT					**Points**
Testing, Iteration, Task Performance & Reliability					
0 The robot does not perform the task or no testing evidence is provided.	**1-3** Major design or programming failures prevent task completion; testing is informal with little documented redesign or debugging.	**4-6** Robot completes part or most of the task, but test procedures, data, repeatability, redesign, debugging, or reliability is inconsistent.	**7-9** Robot reliably completes the task with documented tests, data, failures, debugging, redesigns, and minor performance issues.	**10** Robot performs autonomously and consistently; rigorous test data drives effective build/code iterations, optimization, and reliability.	
PROJECT					**Points**
Originality, Process Evidence & Student Authorship					
0 Originality, design process, or student authorship cannot be established.	**1-3** Work shows limited original decisions; kit design, copied code, sources, build stages, or student contribution are unclear.	**4-6** Student contribution is evident, but originality, process evidence, customization, source credits, or technical decisions are basic.	**7-9** Original robot and program show clear ownership, appropriate credits, and strong evidence of planning, building, testing, and revision.	**10** Distinctive engineering and programming solution proves independent authorship and understanding of major design and code decisions.	
PRESENTATION					**Points**
Explanation of Engineering & Programming Process					
0 Does not explain or demonstrate the robot, build, program, or design process.	**1-3** Explanation is difficult to follow; limited preparation or understanding of how the robot was designed, built, and programmed.	**4-6** Explains major build and programming steps, but detail, organization, testing, iteration, or delivery is inconsistent.	**7-9** Clearly explains the problem, design options, kit/custom choices, construction, code, test data, failures, redesigns, and performance.	**10** Confident demonstration shows command of the engineering-design and programming workflow and justifies major decisions.	
QUESTIONS					**Points**
Engineering Knowledge, Troubleshooting & Responses					
0 Does not answer judges' questions.	**1-3** Answers are incomplete or show little understanding of design, components, construction, code, sensors, testing, or failures.	**4-6** Answers most questions and describes basic build, programming, testing, or troubleshooting challenges.	**7-9** Provides specific, accurate responses about design decisions, kit modifications, mechanics, electronics, code logic, sensors, testing data, safety, and revisions.	**10** Insightful responses demonstrate deep engineering and programming knowledge, effective troubleshooting, reflection, and equal group contribution.	

AI-GENERATED ROBOTICS DESIGN OR PROGRAMMING PROHIBITED: Entries may not contain generative-AI-created robot designs, schematics, block sequences, written code, programming logic, flowcharts, documentation, text, images, or other production assets. Judges should not independently penalize suspected use; pause scoring and refer the entry to ACTE staff for review.

Judges Printed Portfolio Checklist Score	**/30**
Robotics B Project & Oral Presentation Score	**/70**
Total Project Score	**/100**
Ranking (ACTE Staff Only)	

Judges Initials: _____