

ASCENT PATHWAYS

CATEGORIES AND PATHWAYS

DETAILED INFORMATION FOR SUBMISSION

Information in this document will describe how to submit your work, what categories and pathways to select and how information will be assessed.

PROJECT DETAILS

Pathway Categories

Ascent Pathways will focus on 4 categories of project submissions.



Sub category/Focus Groups

Apprenticeship <ul style="list-style-type: none">• A structured, experiential learning program where students engage directly with robotics technology and processes to develop practical skills. This approach combines mentorship from industry experts with real-world tasks.	SKILLS <ul style="list-style-type: none">• Through hands-on activities, students learn to design, construct, and program robots, while also developing critical thinking, collaboration, and project management abilities. This approach bridges the gap between theoretical knowledge and practical application.	Career <ul style="list-style-type: none">• A guided learning pathway that connects robotics experiences to real-world career opportunities. By engaging in hands-on projects, students explore various roles within STEM fields, from engineering and programming to project management and design.
Education <ul style="list-style-type: none">• A dynamic learning approach that integrates practical, project-based experiences with foundational academic knowledge in STEM. Students engage in building, programming, and testing robots, which deepens their understanding of complex concepts while developing problem-solving and critical thinking skills.	Networking <ul style="list-style-type: none">• A collaborative learning experience that connects students with industry professionals, mentors, and peers through robotics projects and events. By working on real-world tasks and participating in competitions or workshops, students gain valuable opportunities to build relationships within the robotics and STEM communities.	Training <ul style="list-style-type: none">• A comprehensive, experiential learning process where students develop technical expertise and problem-solving skills by building robots. This approach focuses on building competencies in areas such as engineering, coding, and system integration. Students receive structured guidance and feedback while engaging in real-world projects.

PROFICENCY LEVELS

With each submission there are 4 proficiency levels.

- **Level 1 (Beginning):** Learning the basics, needing guidance, limited independence.

- **Level 2 (Developing):** Gaining competence, still needing some support, beginning to apply knowledge more independently.
- **Level 3 (Excelling):** Confident and skilled, performs tasks independently, begins to mentor others.
- **Level 4 (Mastering):** Expert-level, drives innovation, strategic in decision-making, leads and mentors others at the highest level.

PATHWAY CRITERIA

Each of the 6 Pathways will be assessed using these categories for each of the levels achieved.

- Knowledge & Understanding
- Skills & Application
- Collaboration
- Decision Making

Knowledge & Understanding

	Level 1 - Beginning	Level 2 -Developing	Level 3 -Excelling	Level 4 - Mastering
Knowledge Base	Understands basic concepts, terms, and processes but lacks depth or breadth of knowledge. Relies on external sources or instructions to grasp new information.	Understands foundational concepts and begins to grasp more complex ideas. Can explain basic principles but may still need clarification or deeper understanding of advanced topics.	Demonstrates a comprehensive understanding of key concepts and a solid grasp of more advanced topics. Integrates knowledge across multiple areas and can explain complex concepts to others.	Possesses an expert-level understanding of concepts and an in-depth knowledge of advanced topics. Anticipates emerging trends or developments and applies cutting-edge knowledge to innovate and lead.
Application	Can apply knowledge to simple tasks but struggles with more complex or unfamiliar scenarios. Needs guidance to make connections between concepts and tasks.	Applies knowledge effectively in familiar situations, though may need support for complex or new scenarios. Begins to make connections between concepts and tasks, solving problems with some guidance.	Applies knowledge independently and confidently in a variety of contexts, including unfamiliar or challenging situations. Can adapt learned concepts to novel scenarios and consistently performs tasks at a high level.	Applies knowledge in innovative and strategic ways, leading others in complex or high-stakes situations. Shapes practices or policies by synthesizing knowledge from multiple disciplines to create new solutions.
Retention	Retains limited information and may require frequent reminders or references to perform tasks.	Retains key information and applies it to similar tasks without constant reference. Starts to recall information more	Retains and recalls information efficiently, applying it across diverse situations.	Demonstrates mastery in recalling and applying knowledge in diverse and challenging environments.

	Struggles to recall information in new or varied contexts.	independently and adapt knowledge to new situations, though may still require occasional reminders.	Utilizes deep knowledge to solve problems creatively and quickly, often without external input.	Uses extensive knowledge to predict future needs, guide others, and drive the development of new practices.
Problem Identification	Recognizes issues when prompted but lacks the ability to independently analyze or solve them. Often requires supervision or support to understand or address problems effectively.	Identifies issues with increasing accuracy and begins to troubleshoot with some autonomy. Seeks solutions but may still need help when problems are more intricate or abstract.	Identifies problems independently and analyzes them from multiple perspectives. Solves complex problems with minimal guidance, often finding solutions that improve processes or outcomes.	Proactively identifies systemic issues or opportunities and formulates strategic solutions. Provides thought leadership by solving high-level, complex problems and mentoring others to enhance problem-solving capabilities.

Skills & Application

	Level 1 - Beginning	Level 2 -Developing	Level 3 -Excelling	Level 4 - Mastering
Task Execution	Can perform simple tasks or processes with step-by-step guidance. Lacks confidence or precision when working independently.	Completes routine tasks with minimal supervision and growing accuracy. Starts to handle slightly more complex tasks but may still need guidance.	Consistently completes both routine and complex tasks with accuracy and efficiency. Takes on challenging assignments with confidence.	Executes tasks with expertise, setting a high standard of quality, speed, and innovation. Manages complex, high-pressure situations effortlessly.
Supervision	Requires close monitoring to ensure accuracy and completion of tasks. Struggles to adapt if instructions or situations change unexpectedly.	Can follow general guidelines and adjust slightly to changing circumstances. Begins to seek solutions independently but checks for confirmation from a mentor or supervisor.	Works independently on most tasks, seeking input only for highly specialized or strategic activities. Takes initiative to manage workload and prioritize effectively.	Operates completely independently, often overseeing and guiding others. Takes ownership of major projects and ensures successful outcomes.
Adaptability/Efficiency	Follows instructions rigidly without the ability to modify or	Performs tasks more consistently and with greater speed, though	Proactively adjusts to changes in	Thrives in dynamic and unpredictable environments.

	customize processes to meet specific needs.	occasional errors may occur.	processes, goals, or requirements. Demonstrates flexibility and creativity in applying skills to diverse situations.	Innovates processes and introduces new methodologies to adapt to evolving challenges.
Critical Thinking	Mistakes are common as part of the learning process, requiring feedback to correct and improve.	Can identify straightforward issues and propose solutions, relying on external support for more complex challenges.	Analyzes and resolves issues efficiently, often without external input. Implements effective solutions and identifies opportunities for process improvement.	Anticipates potential problems and develops proactive, creative solutions. Resolves highly complex or systemic issues, often driving strategic improvements.

Decision Making

	Level 1 - Beginning	Level 2 -Developing	Level 3 -Excelling	Level 4 - Mastering
Process	Relies on guidance or instructions to make decisions. Struggles to make independent decisions without clear direction.	Can make decisions independently for routine or familiar tasks. Requires occasional guidance or support when making more complex decisions.	Independently makes decisions for both routine and more complex situations. Can confidently navigate ambiguity and consider multiple factors when making decisions.	Makes strategic decisions that affect long-term goals and organizational outcomes. Anticipates future challenges and opportunities, making proactive decisions that guide the direction of projects or teams.
Confidence	Hesitant when making decisions, often second-guessing or deferring to others for confirmation. Requires reassurance or validation from others to feel confident in choices.	Grows in confidence when making decisions but may still hesitate with unfamiliar or high-stakes choices. Willing to take ownership of decisions but seeks validation for major decisions.	Makes decisions with a high level of confidence, even when facing uncertainty or risk. Justifies decisions effectively and takes ownership of outcomes.	Exhibits unwavering confidence in decision-making, even in high-pressure or high-risk scenarios. Takes full accountability for decisions, inspiring

				confidence in others.
Risk Taking	Avoids making decisions that involve risk or uncertainty. Prefers sticking to familiar, low-risk options.	Willing to take moderate risks but prefers having some assurance or backup plan. Starts to consider alternative options and their potential impacts.	Proactively takes calculated risks and encourages others to do the same, backed by research or past experience. Evaluates risks thoughtfully, balancing potential benefits with possible downsides.	Drives innovation and success by taking bold, well-informed risks. Leads with vision and courage, making decisions that position the team or organization for future growth and success.
Problem Solving	Makes decisions based on limited information, often requiring external help to fully assess the situation. Focuses on immediate, surface-level solutions rather than considering long-term consequences.	Identifies the core issues and weighs possible solutions, though might still overlook longer-term or secondary factors. Seeks input from others when faced with uncertainty or complex problems.	Considers long-term consequences and broader implications in decision-making. Regularly makes well-rounded decisions that contribute to both immediate goals and future success.	Identifies and addresses systemic issues, shaping long-term solutions that impact the overall strategy or direction. Guides others in making complex decisions and fosters a culture of sound decision-making within the team or organization.

Collaboration

	Level 1 - Beginning	Level 2 -Developing	Level 3 -Excelling	Level 4 - Mastering
Engagement	Participates in team activities but may not actively contribute ideas or feedback. Relies heavily on others for direction and guidance during collaborative efforts.	Actively participates in team discussions, contributing ideas and offering support when needed. Begins to take responsibility for assigned tasks and follow through on commitments.	Actively leads and contributes to team discussions, offering valuable insights and facilitating cooperation. Helps to align team goals and motivates others to collaborate effectively.	Inspires and leads high-performing teams, creating a collaborative and innovative environment. Shapes team vision and fosters a culture of trust, respect, and shared accountability.
Communication	Has difficulty expressing thoughts clearly or concisely within a group setting.	Communicates ideas more confidently, though may still need	Communicates ideas clearly and persuasively,	Communicates complex ideas effectively,

	<p>Prefers to listen rather than contribute, often requiring encouragement to share opinions.</p>	<p>to clarify or refine points in group discussions.</p> <p>Starts to engage in active listening, valuing input from others and integrating diverse perspectives.</p>	<p>ensuring that team members are aligned and informed.</p> <p>Adapts communication style to different team members, fostering an inclusive environment.</p>	<p>influencing the direction of the team or organization.</p> <p>Promotes transparent communication within the team, ensuring all voices are heard and considered.</p>
Conflict Resolution	<p>Struggles to handle disagreements or differing opinions, often deferring to others to avoid confrontation.</p> <p>May need help managing conflicts or misunderstandings within the group.</p>	<p>Handles disagreements with some support or guidance, attempting to resolve conflicts calmly.</p> <p>Seeks compromise and is willing to adjust their position in collaborative situations.</p>	<p>Proactively addresses conflicts, facilitating resolution with minimal disruption to team dynamics.</p> <p>Encourages open dialogue and promotes understanding among team members.</p>	<p>Masterfully resolves conflicts, turning challenges into opportunities for growth and stronger collaboration.</p> <p>Mediates complex disagreements with tact, guiding the team to consensus without damaging relationships.</p>
Leadership	<p>Follows directions but does not actively take on leadership or initiative within the group.</p> <p>Relies on others to coordinate tasks and make decisions.</p>	<p>Takes on specific roles within the team, contributing to shared goals.</p> <p>Can begin to lead small projects or tasks with support from others.</p>	<p>Demonstrates leadership, taking initiative to guide the team toward its goals.</p> <p>Supports team members by delegating tasks appropriately and ensuring collaboration across roles.</p>	<p>Takes a strategic role in team leadership, setting goals and aligning efforts toward long-term success.</p> <p>Mentors others in teamwork and collaboration, building strong, diverse, and high-functioning teams.</p>

PATHWAY LEARNING SUB-TOPICS THROUGH ROBOTICS

As each of the above criteria will be used for assessing a student's knowledge, the program specific skills will be categorized in the following sections for each submission. Each submission will be allowed to select one or more of these topics.

Business Development <ul style="list-style-type: none">• Technical Writing• Presentation Skills• Project Management• Business Development• Sales & Marketing• Fundraising	Software Development <ul style="list-style-type: none">• Application Development• Source Control• Agile Development• Mobile App Development• Custom App Development• AI / Neural Net• Machine Learning	Electrical <ul style="list-style-type: none">• Electrical Design• Electrical Implementation• Custom Electrical Design
Mechanical <ul style="list-style-type: none">• CAD• Mechanical Fabrication• G-Code• Tool Specific Skills*	STEM Skills <ul style="list-style-type: none">• Critical Thinking• Digital Literacy• Safety Training	Analytical Skills <ul style="list-style-type: none">• Data Analysis• Data Analytics

*For Tool Specific Skills, these will be analyzed using our Safety Program and will be reviewed based on tools selected.

SUBMISSION DETAILS

1. Fill out the Ascent Pathways form submission here - https://docs.google.com/forms/d/e/1FAIpQLSfdD7822yE_v-X0I0IHW5io34w4fviroo5EhoggUDfH-KfivQ/viewform?usp=preview
2. When completing the form, please use the following template to submit your application. Use this template -

<https://docs.google.com/document/d/1wQPNp20psWHR6EyqaxlmR8tIpi6DtXUx9yAydRy7LBI/edit?usp=sharing>

3. This document is located on our GoogleDrive
4. Please complete all the sections, but feel free to add more information, pictures, charts and formatting.

Time Frame/Response

Your submission will be reviewed within 2 weeks of submission or we will notify you when it will be completed. We will create a document with feedback and suggestions. You will earn credit for the items you submit for workforce sub tasks.

REVIEW & FEEDBACK SUBMISSION

Submission Category review

For each submission an Ascent Pathways Professional(s) will review the submission and assess the submission for the following groups in 4 categories, depending on the submission classification : Beginning, Developing, Excelling or Mastering

- Business Development
- Software Development
- Electrical Development
- Mechanical Development
- STEM Skills
- Analytical Skills

Each category assessed; the reviewer will provide comments for each selection.

Submission Pathway Review

Then, each of these pathways will be assessed with the classification: Beginning, Developing, Excelling or Mastering

- Knowledge & Understanding
- Skills & Application
- Collaboration
- Decision Making

Submission Credits Earned

- Certifications
- Ascent Pathway Credits
- Professional Work Experience
- Training

Certifications

Certifications are earned if specific criteria are met. The following

Ascent Pathways Credits

Credits are earned for the number of hours spent on submission. 1 credit is approx. 4 hours of effort.

Professional Work Experience

Level earned based on internships or job experience.

Training

Any type of training taken with proof of completion.

Badges

For any specific skill earning a mastered level, a badge will be placed with credits earned on the certificate of Workforce Development Completed.

Submission Review Process

For each submission per student, certified professionals will review each section of focus using 3 forms of assessment:

Form – This form will be filled out per submission per professional located here - <https://forms.gle/EfHEVx2x1u8eBYPc8>

Submission Interview - Specific submissions the certified professionals will request interviews for students to discuss their submission. This will be part of the final assessment, but to further clarify details about this submission.

Final review Submission – this form will be used, 1 per student, and will document each submission with the specified criteria. All comments, certifications and credits earned will be noted and defined in this document as will specific certifications earned.

Certificate – A certificate will be completed with the students name, and main categories the submission was defined. On the back of the certificate, each sub-category, credits and badges for each earned will be displayed. Each Professional will sign the certificate.

ASCENT PATHWAY PROFESSIONALS

Here is a list of all of our Ascent Pathways Professionals that will be part of reviewing submissions. Not all personnel will respond to every submission.

Name	Degree/Expertise	Skill Expert
Tony English	Mechanical Engineer	
Debbie English	Computer Science	
Michael English	Mechanical Engineer	

Jacob Frye	Mechanical Engineer/Physics	
John Wiens	Electrical Engineer/CS Masters	
Chun Che Lo	Electrical Engineer	
Alex Gronlund	Technician	
David Gronlund	Electrical Engineer	
Annie Gronlund	Business	

EXIT & POST PROJECT SUBMISSION

We will periodically survey our graduated students on their progress throughout their advanced learning or workforce jobs.