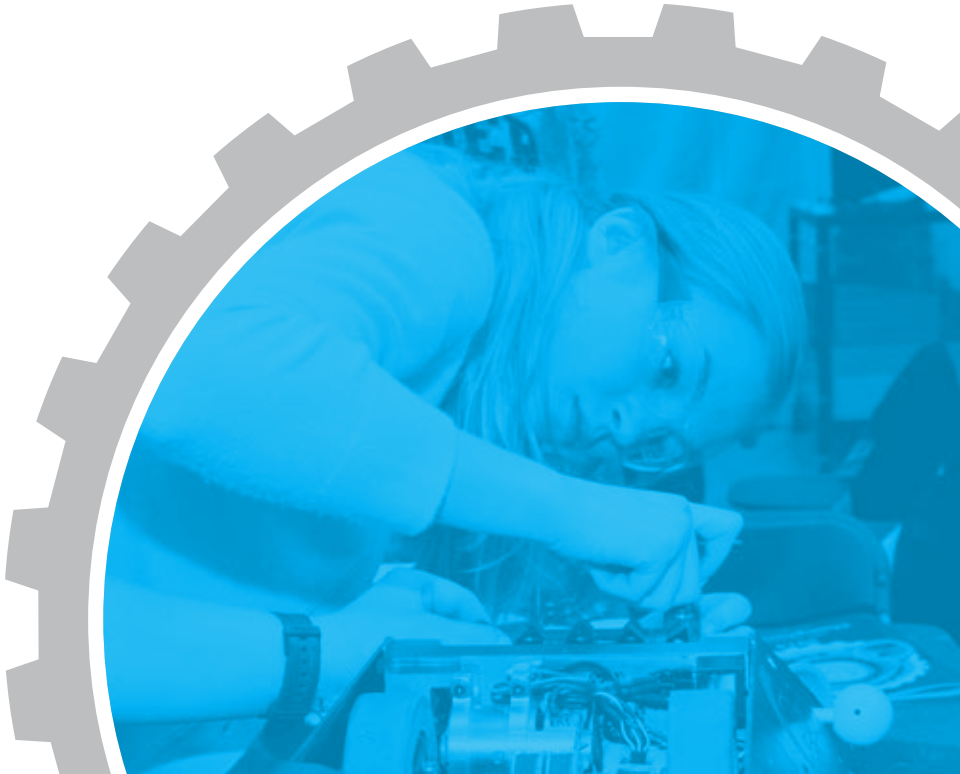
JOINING THE NATIONAL ROBOTICS LEAGUE AS AN INDUSTRY ADVISOR

THE WHY, HOW AND WHAT'S-IN-IT-FOR-YOU



ROBOTS AND ROLE MODELS: AN INTRODUCTION

HOW THE NRL CAN HELP BUILD A NEW CROP OF TALENT FOR A BURGEONING INDUSTRY

Sparks fly. Metal crunches. Robots go to war. The National Robotics League (NRL) is a combat robotics program from the National Tooling & Machining Association (NTMA)—and it's a surefire way to pique students' interest in technology, math and engineering. For the manufacturers and job shops that take on the role of NRL Industry Advisor, the excitement of competition is just the beginning; they'll help turn the students they mentor into passionate, skilled, future job candidates.

Read on to learn why becoming an NRL Industry Advisor is a smart move.

NTMA

BUILDING TOMORROW'S MANUFACTURING LEADERS—ONE ROBOT AT A TIME

WHY THE NRL MATTERS

Few youth have the chance to see firsthand the opportunities, career paths and successful role models in the manufacturing sector. The result? A critical shortage of skilled manufacturing workers. Estimates of unfilled job openings range from 500,000 to 1 million. In fact, some manufacturing companies have had to turn away business because they don't have the employee resources to meet the requested turnaround times.

What's more, manufacturing technologies and workforce realities are changing at an unprecedented rate—and our current education and training systems struggle (and sometimes fail) to keep up. We need a way to bridge the gap between in-school training and real-world experience. And that's where you come in.

500,000 - 1 MILLION

THE ESTIMATED NUMBER OF UNFILLED MANUFACTURING JOBS IN THE U.S.

BUT WHAT CAN I DO?

Welcoming students into your manufacturing facility helps them apply their academic education in a real-world, business environment. As a result, students learn the technical and soft skills needed for careers in manufacturing and are exposed to the benefits of working in the industry. What's more, when manufacturers like you step up to the plate to collaborate with educators on project-based learning opportunities, it helps build a skilled, enthusiastic and adaptable employee pipeline. As an NRL Industry Advisor, you're not only making a difference in the lives of students—you're creating your own personal workforce development program.

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WHAT'S IT ALL A 'BOT?

SO WHAT IS THE NRL, EXACTLY?

Students, educators and Industry Advisors (that's you!) who participate work together to design and build remote-controlled robots—ultimately for use in a gladiator-style, robot-vs.-robot competition. Through this project-based learning opportunity, students work in teams and gain technical and critical thinking skills, while learning about the pathways to a rewarding career in manufacturing. This provides a national structure for educational robotics competitions and helps local NTMA chapters invigorate and grow their organization.

- Qualifying robotic programs join the NRL, which offers a fair, safe and cost-effective environment in which to build, design and compete
- Student teams compete regionally to test their robotic creations and battle for local supremacy
- Teams compete in the NRL National Competition in May
- Judges evaluate arena battle results, as well as each team's engineering documentation binder, which weighs heavily in the crowning of the Grand Champion

Robot carnage—and the preceding anticipation around it—makes for a thrilling, hands-on learning experience. More so than any other technical training, this experience has the power to instill a deep interest and positive feelings about manufacturing as a career.

WHAT IS PROJECT-BASED LEARNING?

The NRL relies on project-based learning—a teaching approach that promotes, collaborative, real-world experiences. This is different from the traditional lecture, homework and exam approach. Student projects are organized around a driving question—and tasks that seek to find a meaningful answer. This creates an important shift from teacher-directed training to student-initiated learning.

This type of hands-on learning plays a particularly important role in manufacturing, as it enables a real-world connection and increases interest. Combined with traditional classroom teachings, students gain a more comprehensive understanding of the industry.

WHY ME?

YOUR CRITICAL ROLE

The success of the NRL depends on willing Industry Advisors/mentors like you from local manufacturing companies. Only with your help are participating schools able to expose students to years of expertise and a real-world manufacturing environment.

If you decide to participate, you'll designate one or more of your employees to fulfill the duties of technical advisor, which include:

- Meeting with the team to assist with the design and planning; the frequency of the meetings can be determined by the team's faculty advisor and the Industry Advisor
- Assisting the team in the process of building the 'bot; this could include machining parts, welding, etc., and/or training the students to accomplish these tasks; it can also include introducing the team to other manufacturing companies and/or vendors
- Explaining the importance of documentation in the manufacturing process; provide real-life examples so the students can understand why documentation is a critical component of the project
- Taking the students on a tour of your facility and creating opportunities for them to interact with your employees to learn about the benefits of working in manufacturing
- Providing the team with access to raw materials (through your excess materials or your suppliers)

BRING IN YOUR VETERANS

Manufacturing companies are losing a tremendous amount of knowledge to employee retirement. Take a proactive approach to retaining this information by involving your most tenured employees in the 'bot-building process. This can help pass down a wealth of experience to future generations. Be among the industry leaders who are taking an active role in the future success of American manufacturing!

WHAT'S IN IT FOR ME?

MORE THAN ROBOT BRAGGING RIGHTS

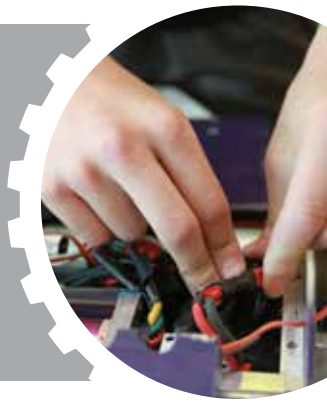
Helping students and the local community is a noble effort—but our Industry Advisors reap plenty of benefits themselves. Manufacturing companies throughout the nation have served as Industry Advisors, renewing the professional development of their own staff in the process—thanks to an infusion of creativity, excitement and passionate competition.

Become an Industry Advisor and reap the benefits:

- Build your own pipeline of skilled manufacturing workers and improve the recruitment of new workers
- Identify, use and reward untapped resources within your current workforce—enhancing their skills and reinvigorating existing employees
- Influence curriculum enhancements at schools to increase instructional effectiveness
- Create community goodwill and positive PR
- Ultimately reduce hiring and training costs

A LONG-TERM INVESTMENT IN THEIR FUTURE—AND YOURS

Being an NRL Industry Advisor isn't a line-item expense in this year's budget—it's a long-term investment, with potentially significant ROI—in your company's future. Keep in mind that you decide what resources (human and material) you'll allocate toward this project. This is your opportunity to ensure the future of our nation's manufacturing sector—and your business success. We can assure you that your investment will be worth it.



SIGN ME UP!

TAKE THE STEPS TO BECOME AN INDUSTRY ADVISOR

The 'bot is in your court: If you're interested in becoming an NRL Industry Advisor, you'll need to personally connect with your local school administration and present the opportunity to collaborate with you on this learning opportunity. Head over to the local high school and introduce yourself to the school superintendent or principal.

WHO DO I TALK TO AT THE SCHOOL?

Connecting with the right people is essential to success. The following school representatives are a good place to start:

SCHOOL SUPERINTENDENT

Superintendents, at the direction of their school board, draft the policies that govern the operations of all schools and set goals for the schools, such as developing a new curriculum. The superintendent then works with the principals or administrators of each school, parents and members of the community to implement the changes necessary to meet these goals.

SCHOOL PRINCIPAL

Principals set the tone for learning and accountability at the individual school by casting the vision for the school; they broker buy-in from teachers, students and community members. Principals develop yearly improvement plans and work with teachers and community members to implement them. Principals are accountable to the superintendent as well as the community they serve, and must consider the desires of the school board before making decisions that may impact the community.

SCHOOL BOARD MEMBERS

School board members typically are a mix of people with or without educational backgrounds who work voluntarily in the best interest of the students and the community. The school board acts as a watchdog, making sure that both the educators and the administrators are actively pursuing excellence. They are responsible for analyzing the progress of a particular school and setting policies designed to improve school performance.

TEACHERS

Teachers are responsible for creating lesson plans and delivering classroom instruction. It is particularly important to connect with the STEM and technical education teachers, although teachers of other disciplines can also be a target audience. While teachers don't usually have the authority to make sweeping changes, they are in a position of influence within the system, and represent an important link between students and school administration. A strong teacher/Industry Advisor relationship is critical to student success, so open communication is key.

STUDY UP ON SOME IMPORTANT TALKING POINTS

When speaking with school representatives, it's important to sell the advantages of the NRL's program. Here are some tips:

- First off, remember that you may need to be respectfully persistent, as school administrators are very busy; don't let that deter you from trying to build a long-term relationship
- Bring these materials to help you describe the NTMA, the NRL and its goals for this program
- Integrating science, technology, engineering and math (STEM) education through project-based learning is a hot topic right now. The NRL offers a very unique STEM-related experience to students—that without you wouldn't be possible.
- Explain that this is a job-driven, project-based STEM learning opportunity that also happens to be fun and engaging for students
- Talk about the workforce issues affecting the local manufacturing community and remind them that the best way to keep manufacturing companies in the area is by growing their potential employee base through education and awareness.
- Assure them that teachers and students will have your full support and mentorship during this program

BE SURE TO USE THE LAST PAGE OF THIS TOOLKIT AS A HANDOUT FOR SCHOOL REPRESENTATIVES. FILL IN YOUR NAME AND CONTACT INFORMATION AT THE BOTTOM OF THE SHEET.

EDUCATOR HANDOUT

HOW YOUR STUDENTS CAN BENEFIT FROM JOINING THE LOCAL NRL ROBOTICS PROGRAM

THANKS FOR YOUR INTEREST IN THE NATIONAL ROBOTIC LEAGUE (NRL)

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WHAT'S IT ALL A 'BOT?

Students, educators and manufacturers who participate in the program work together to design and build remote-controlled robots—ultimately for use in a gladiator-style, robot-vs.-robot competition. Through this unique STEM-related, project-based learning opportunity, students work in teams and gain technical and critical thinking skills, while learning about the pathways to a rewarding career in manufacturing.

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More so than any other technical training, this experience has the power to instill a deep interest and positive feelings about manufacturing as a career—important for our community and our country.

QUESTIONS?

Your NRL Industry Advisor—the local manufacturer who sponsors the robotics competition—will offer full support and mentorship to students and educators throughout the program.

Your NRL Industry Advisor is _____

Phone number: _____

Email address: _____