



Edgar Allan Ohms
Handbook
2019-2020



AMRoC FabLab
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AMRoC Youth Robotics Program Objectives

The Advanced Manufacturing & Robotics Center (AMRoC) Fab Lab is a program of the non-profit Foundation for Community Driven Innovation (FCDI). One of AMRoC's signature offerings is our youth robotics programming for K-12, as well as post-high school robotics education. This handbook covers our youth programming for students in Kindergarten through high school.

AMRoC Robotics Program Learning Goals

We believe high quality Science, Technology, Engineering and Math (STEM) education should be accessible to all youth, and that all youth with an interest in math, science, and technology should have an opportunity to express and explore those interests. We seek to bring K-12 project based learning through robotics as within reach as scouting, and to make it as commonplace, accessible and fun as a pick up game of basketball.

All participants in the AMRoC Robotics Program agree to abide by our proven philosophy of “Character before Competition.”

Our goal is to elevate character, teamwork, and academic and intellectual achievement above all else. We do not seek to win at all costs, but rather to give team members an enduring hands-on STEM experience that will serve them well into their futures. Putting character before competition has yielded a consistently high achieving team experiences that reliably bring home trophies year after year, and is well regarded not just statewide but nationally.

Our Youth Robotics teams agree to abide by the rules of competition set forth by FCDI in exchange for the opportunity to be involved and compete in the robotics challenges. As much as we all enjoy winning, however, our programs aren't about proving that we're better than other teams; it's about challenging ourselves to meet the highest criteria possible across a range of requirements in the course of the competition, and to create strong character driven team experiences. The competition itself is just a vehicle to demonstrate skills mastery, and to provide a fun and engaging opportunity to exercise science, engineering, math, technical, interpersonal and professional skills gained in the course of the season. Winning is the ultimate incentive to repeat and improve learned skills, of course, but winning shouldn't be confused with succeeding.

Our goal for youth involved in our AMRoC Robotics programs is for students is to develop exemplary professional conduct and to them teach solid design, engineering, programming, professional and technical skills in a fun, collaborative environment that hones teamwork and communications skills.

Competitions may be won or lost for any number of reasons. But a team with character, skill and class will always be successful.

Program Overview

A TYPICAL SEASON

The FIRST Robotics Competition “season” officially begins in January. Team members have 10-12 weeks to design, build and program a robot to perform that season’s challenge. In March, the team competes in a Regional competition held in Orlando and tries to secure a spot to the FIRST Championship in Houston, which is usually held in April.

Typically, the team meets year-round for fundraising, team building, training, and organizational activities. In the off-season, during summer and early fall, we may meet only once or twice a month, and for special team building and training programs. In-season, teams usually meet at least once or twice week, and meetings last 4-6 hours. Sometimes there will be take-home work to complete between meetings (i.e Engineering notebook entries, programming, team spirit projects, etc.). Meeting schedules and activity plans will be posted to our email worklist.

BENEFITS OF TEAM MEMBERSHIP include:

- **SCHOLARSHIPS** –over \$80 million in scholarships for high school aged students
- **TRAVEL** – to Regional competitions with the goal of making it to the Houston Championship in April, recognizing top teams worldwide.
- **EXPERIENCE** - many corporations across the nation are participating in the youth robotics program we support and want to hire students who have participated in these programs.
- **NEW SKILLS acquisition** and the opportunity to explore careers in business, visual arts, science or technology. AMRoC emphasizes high quality training opportunities in CAD design, programming, building and design, and public speaking.
- **TEAM BUILDING** skills that prepare students for LEADERSHIP ROLES.
- **FUN experience** meeting and networking with students and experts in a variety of fields.

JOINING The Team

If we have membership openings, interested students must complete the application near the end of the handbook for consideration. Applicants under consideration will be invited to attend team meetings, to determine if the student and team are a good fit for one another. As a community-based team, members from public, private and homeschools are welcome to apply to be part of our team.

Student members must comply with attendance, behavior and grade maintenance requirements to remain part of the Edgar Allan Ohms Team.

Build Season and Competition

Team Meetings

Build season meeting attendance is mandatory – The mandatory team meeting day is Tuesday; meeting hours are prone to fluctuate but will always start after school. If a team member can't make a meeting, please advise teammates and coach as soon as possible.

Meetings times, dates, and agendas, as well as all other important notices, are announced and archived at our teamwork site (usually Slack) to which all members will belong. *Electronic communications are the preferred form of communications and all members are expected to check their email and related digital communications platforms regularly and to actively communicate with one another and the coach about meetings.*

Please note: All AMRoC Robotics Programs institute a “build freeze” one week before every competition. All major design and construction must be completed in advance of competitions, and at the one-week mark, no major structural or design changes will be made to the team robot. This is a firm rule.

Meeting Agendas

The agenda for each meeting, with specific tasks and goals, is coordinated between the team leaders and the coach(es). 15-30 minutes will be allotted at the start of each meeting for general administrative housekeeping, with 30 minutes allotted at the end of each meeting for clean-up. Agendas will be provided to members in advance of each meeting.

Team Roles and Responsibilities

TEAM ROLES and RESPONSIBILITIES may include, but not be limited to, the following (students may be part of multiple sub-teams, as needed and able):

Student Captains

The student captains coordinate overall engineering and design of the robot with communications, building and programming teams, and works in cooperation with coaches and mentors to achieve season objectives. The student captains are also responsible for assisting mentors in organizing and scheduling team meetings, setting team priorities and keeping members focused. Student captains are responsible for knowing game rules, robot mission and challenges, and communicating this critical information to team members. They will also verify that any proposed programming and mechanical solutions are addressing needed goals. It's a big job, and other team members are expected to cooperate with and assist the student captains for effective teamwork and project success.

Engineering and Build Team

The engineers make decisions about building, and work to achieve consensus among team members on the mechanical design of the robot using guidelines developed by the team. The engineers are responsible for using computer added design (CAD) to construct models of the agreed upon robot design. Builders make related journal entries for robot design and

construction. The Build team is also responsible for hardware and tools management, to ensure that all equipment is well cared for and properly stored and inventoried.

Programming Team

The programming team is responsible for writing the code that will allow the robot to complete the seasons objectives. Programmers ensure that programs are completed by appropriate deadlines and are responsible for Engineering notebook entries related to programming. Programmers will ensure that programs work 90% of the time or better and will schedule time with builders and drivers for changes and driving practice. Programming members ensure that all wires and critical components of the robot are secured and in compliance with Challenge guideline and requirements.

Awards Committee

These members will ensure that we're working effectively towards the highest award recognition by being well informed about award requirements and encouraging and guiding team members towards top performance in all areas. The awards committee is also responsible for coordinating all aspects of filming and production of the any team video which will be viewed by judges for award recognition at events.

Safety Captain

The Safety Captain, in coordination with an adult mentor, will help establish safety rules and plans to enforce them. Responsibilities include ensuring that sufficient safety glasses are available and that they are worn by adults and youth at relevant times during practices and competitions, and that clothing and behavior is appropriate with respect to safety of team members and others.

Marketing and Fundraising Team

These team members, in coordination with adult mentors, are responsible for helping create a team business plan, coordinate fundraising efforts, assist with community outreach opportunities, and maintaining team finance records. They will also ensure that the team "look" is effective, neat and well presented, and will also help develop and maintain sponsorship and team information packets and will help with the team's online presence.

Media Team

The media team helps document, via video and photography, the team year, and updates the website and social media platforms with relevant photos and videos. The complete build process should be chronicled, as well as tournament activities, with photos for use in marketing and news media.

Additional roles may include:

Robot Drive Team – The robot drive team consists of five students each with a different role. The lead driver is typically a member who shows an aptitude for remote control finesse, strategy and precision. Other drive team members responsibilities include but are not limited to, communicating strategy with other teams, ensuring the safe transportation of the robot during

competition, and interacting with competition field elements. All who are interested are welcome to learn to drive and will be given the opportunity to practice driving the robot.

Scouting Team – Scouters play a vital role during competitions, they gather, organize, and share information regarding the strategy and design of other teams' robots. This information is used by the robot drive team to determine their approach to upcoming matches.

Expectations at Meetings and Events

Expectations at Meetings

Students must sign in and out on the meeting attendance sheet at all meetings. *Members are not to sign in or out for each other.* We ask that all students who are picked up from meetings meet their ride at the back entrance to the facility.

All members who bring food to meetings or purchase food inside the mall must eat at the designated tables. To ensure there is time for active participation in meetings members are expected to finish eating a half-hour after the meeting start time.

Gracious Professionalism and Respect are expected at all times, for each other, for adult coaches and mentors, and for anyone with whom you're working, anywhere, at any time.

****Any student who shows a pattern of conduct outside of Gracious Professionalism and respect will be dropped from our program. Any parent/guardian who shows a pattern of conduct outside that required of students, will have their child or children removed from our programs. Coaches and mentors are also expected to abide by rules of Gracious Professionalism at all times as well. ****

Be an Active Participant – If there doesn't seem to be enough for you to do, tell us; work with other team mates; take the initiative when you see something that you can do; don't wait to be asked to help.

Be Informed – All members should be thoroughly familiar with rules of the competition, team goals, arrive ready to work at meetings, and understand individual and group tasks.

Be Safe – Members are required to attend meeting wearing the proper attire; t-shirt, jeans/pants without holes, and closes toed shoes. Safety Glasses are to be wore in all required areas and must be wore when working with any tools or equipment. Member with long hair are required to have their hair pulled back and secured when working with tools or equipment.

Communicate – Ask questions if you need help or don't understand something. Communicate clearly, often and openly with each other, your coach and mentors

Be Responsible – Be conscientious about the use and maintenance of equipment, parts and tools. Put things where they belong so they can be easily located when needed. Get to meetings on time; be sure you know what your role is and carry out your responsibilities at meetings. Clean up after yourself, and help others do the same.

Have Fun!! The more respectful, professional, informed, communicative and responsible you are, the more fun you'll have and the more memorable and enjoyable your experience, and that of your teammates, will be.

Expectations at Events

****The same consequences outlined above, for youth and adults, are applicable for any violations of conduct at events, as well as at meetings.****

Be Graciously Professional at all times. Help your team mates and other teams as able. No trash talking, or rudeness, ever – of opponents, one another, students or adults.

Be Positive! - Team members are expected to participate at all times in a positive and helpful manner, whatever the competition outcome or trend.

Show Spirit! – Support your team by cheering and sign waving. Cheer other teams, too.

Look Good! – Wear you team shirt, khaki pants or jeans without holes with a belt, and closed toed shows. Sport a neat, clean appearance; no baggie pants, or loose items of clothing, for safety reasons as much as appearance.

Be Safe! – Wear safety glasses where required; Look where you're going at all times and pay attention to what you're doing. Long hair is to be pulled back and off the face.

Have Fun!

Qualifications for Attending Competitions

School always comes first! Students should maintain a minimum of a B or, in the case of homeschooled students, evidence of equivalent academic commitment, is required for continued participation in team activities.

Appropriate behavior at all times, including at school and in your community, as well as during meetings, competitions, and events.

Students should strive to attend 75% of meetings at a minimum. Students who are not regularly attending and participating in meetings will not be allowed to attend competitions.

Complete and return all paperwork in a timely manner – Throughout the year, various forms and agreements will be required. Please be responsible about completing and returning them.

Meet Expectations of Behavior and Conduct previously listed.

Friends & Family Members

Only student team members, with support as needed from FCDI/AMRoC Fab Lab coaches and official mentors, work on robots, related projects, or programming.

Family members and friends are highly encouraged to attend events and cheer on team members, regardless of competitive success!

While short pit visits are welcome during competitions, parents, friends and family members are asked to enjoy competitions and tournaments from the stands unless otherwise requested by coaches or mentors.

FCDI/AMRoC Fab Lab coaches and mentors, in collaboration with student team members, have the final say in all matters pertaining to team build and competition decisions and protocols.

New Member Application

STUDENT NAME

DATE _____

ADDRESS _____

PHONE # _____

E- MAIL _____

CURRENT GRADE _____

SCHOOL _____

DATE OF BIRTH _____

PARENT/GUARDIAN NAME

PARENT/GUARDIAN OCCUPATION

HEALTH or MEDICAL CONDITIONS of which we should be aware (*this has **nothing** to do with acceptance but helps us keep team members safe and helps us plan activities!*)

What aspects of the team are you interested in? Check all that apply. This does not lock you into a work area. We are just interested in learning more about you. Experience is not necessary; all students are offered guidance and training.

Mechanical Engineering

Electrical Engineering

Programming

Game Strategy

Drafting Design

Publicity / Marketing

Finances

Awards Committee

Other? _____

Do you have any programming, building, writing or other educational, special interest or hobby experience that you feel would be helpful to the team? If so, please identify and tell us the extent of your experience. (Ex. C++, CAD design, MS Publisher, photography or photo editing, shop classes, hobby electronics, etc.)

Are you involved in other organizations, extra-curricular activities or sports? If "YES", please list them:

Are you able to attend after school meetings? If so, starting at what time?

Are you able to attend evening meetings?

Are you able to attend Saturday meetings?

As a member of the team you are required to attend a minimum of 75% of team meetings / activities and maintain a minimum B average (or homeschool equivalent) in your studies. Are you able to meet these requirements?

Are you able to travel to competitions?

APPLICANT ESSAY QUESTIONS

Completion of these questions by the student only please, is required.

To be considered for membership on an AMRoC youth robotics team, please answer the questions below, taking time to consider your answers carefully. There is no right or wrong answer to these questions, but through your responses, we hope to learn more about applicants and their interest to assist in future program planning. If an excess of applicants exist, the response to these essay questions may be used in a selection process.

Why do you want to join the team?

What do you expect to gain from this experience?

What qualities/experiences do you bring to the team that you feel will make you a significant contributor?

Are you involved in other organizations, extra-curricular activities or sports? If “YES”, please list them and tell us something about your involvement in them.

AMRoC Youth Robotics Program CODE OF CONDUCT

Gracious Professionalism and AMRoC

Your signature is required below, and indicates that you have read and agree to abide by our Code of Conduct and our statement of Gracious Professionalism, which is integral to our success as a team and as individuals.

Gracious Professionalism (GP) is the central tenet of *FIRST* robotics and the embodiment of the AMRoC Youth Robotics Program philosophy. It is how we should strive to act, whether we are being watched or not, and in a way that would make those we admire most proud. Gracious Professionalism demands that we treat others with kindness and respect, communicate with one another clearly and honestly, and resolve conflicts and misunderstandings immediately.

Gracious professionalism encourages us to learn and urges us to compete with heart and spirit, but requires that we treat one another with respect and kindness in the process. Gracious professionalism is part of pursuing a meaningful life. It encourages high quality work, impeccable ethics, respect for yourself and others, and the ability to compete in a gracious manner. Gracious Professionalism represents everything the AMRoC Youth Robotics Programs stands for and, commensurately, that we trust any member of our youth robotics programs stands for, as well.

AMRoC Youth Robotics Code of Conduct

Team members will exemplify Gracious Professionalism by:

- Being inclusive and respectful to one another, to other teams, coaches, mentors, parents and other adults, to team property, and to our meeting places, at all times.
- Refraining from disruptive behavior that affects your own team or others.
- Being helpful to one another and others whenever the opportunity arises.
- Actively participating in meetings, competitions and events with a willing spirit of cooperation.
- Showing class and dignity whether winning or losing on the field and regardless of the overall outcome of an event.

Consequences of violating our Code of Conduct may include:

1. A written apology to all team members and to anyone else involved that acknowledges and takes responsibility for the specific misconduct and describes how such mistakes will be avoided in the future.

2. Subsequent activity with the team will be on a probationary basis for the remainder of the season or the following build season, whichever comes Youth Robotics, with the understanding that any and all future instances of misconduct will result in the offending parties involved being sent home immediately. Repeated misconduct with no evidence of attempts to learn from previous mistakes will result in removal from the team.

I have read the above statement and will abide by Gracious Professionalism and the AMRoC Code of Conduct:

Signed: _____ Date: _____

(student)

Signed: _____ Date: _____

(parent)

I, hereby verify that the information and statements on this application are true, to the best of my understanding. I also pledge, if chosen as a AMRoC team member, to meet all requirements of scholastic standing, fundraising, attendance and participation in order to remain a member in good standing.

Student Signature _____ Date _____

I, as parent or legal guardian verify that I have read and understood all of the information contained in this information package.

Parent Signature _____ Date _____

Please email a scanned copy of this agreement with your signature to us at Terri@FFCDI.org

You will be notified of consideration within two weeks. Student must attend a team meeting, with a parent or legal guardian if possible. Accepted students must complete the Coach/Student/Parent – Guardian Agreement which follows.

COACH/STUDENT/PARENT – GUARDIAN AGREEMENT

COACH AGREEMENT

- I will abide by the same core values* that I expect of you as team members.
- I will ensure that all students have opportunities to participate in as many aspects of the team experience as they are interested in.
- I will start and end meetings on time.
- I will have specific recommended goals, determined in coordination with team members, to achieve at each meeting.
- I will communicate regularly and keep you apprised of important deadlines and opportunities.
- I will always listen to you.
- I will facilitate team meetings and help guide your discovery, but final engineering decisions, made within the guidelines set forth in this handbook, rest with team members.

Signature of coach _____ Date _____

STUDENT AGREEMENT

Please check each item you can honestly agree to

- I realize that no problem has only one solution, and that a successful team is one which cooperates by considering everyone's solutions and ideas. I will not denigrate anyone's ideas or thoughts and will listen to other team members and support and encourage them.
- I agree that my behavior at meetings and tournaments will be constructive and above reproach, and I will abide by AMROC Youth Robotics Program Core Values* at all times, especially "Gracious Professionalism".
- I agree that each team meeting is valuable and I will attend each meeting as best as I can. If a conflict arises, I will notify my coach in advance.
- I will be responsible for my own communications with the coach(es) , and responsive, responsible and inclusive in communications with other team members, as well.
- I agree to cooperate on whatever solution the team chooses, even if it is not my Youth Robotics choice.
- I understand that my position on the team is a privilege and that if I am disruptive or disrespectful to others at meetings or tournaments, or violate the terms of this agreement, I may be asked to leave.

Signature of team member _____ Date _____

PARENT-GUARDIAN AGREEMENT

- I agree, in the spirit of the AMROC Youth Robotics program goals that, regardless of how qualified I may feel to intercede, I will not interfere with the coaches' coaching, the team's solutions or do my child's work or communications for him or her. All engineering creations, inventions, ideas, and communications (unless otherwise requested) **must come from student team members under the guidance of program coaches and mentors**
- I agree to make every effort to have my child attend every team meeting. If there is a schedule conflict, either my child or I will notify the coach as soon as possible.
- I understand that my child has a commitment to his/her team and that it is my child's responsibility, not mine, to meet that commitment.
- I realize that my child's coach is contributing a significant amount of time and effort to provide a rewarding educational experience for the team. I will try to be cooperative, helpful and patient as possible.
- I understand that if there are any problems with my child at meetings or at tournaments, my child may be dismissed from the team but that I will be notified of problems as they arise.
- I have discussed all items listed above with my child

Signature of parent/guardian _____ Date _____

***AMROC Youth Robotics Program Core Values**

- **Discovery:** We explore new skills and ideas.
- **Innovation:** We use creativity and persistence to solve problems.
- **Impact:** We apply what we learn to improve our world.
- **Inclusion:** We respect each other and embrace our differences.
- **Teamwork:** We are stronger when we work together.
- **Fun:** We enjoy and celebrate what we do!

**Gracious Professionalism is a way of doing things that encourages high-quality work, emphasizes the value of others and respects individuals and the community. According to Dr. Woody Flowers, who coined the term, "Gracious professionals learn and compete like crazy, but treat one another with respect and kindness in the process. They avoid treating anyone like losers. No chest-thumping tough talk, but no sticky-sweet platitudes either. Knowledge, competition and empathy are comfortably blended."

General Facilities Use Policies

Objectives of AMRoC Fab Lab

Bound by our Code of Conduct and the Fab Lab Charter, AMRoC commits to programming, resources and access that will:

- Provide a training and talent pipeline for Science, Technology and Manufacturing careers in the Tampa Bay and Central Florida regions,
- Inspire young people to become STEM, Manufacturing and Industry leaders by engaging them in exciting mentor based, diverse and inclusive programs that build science, engineering and technology skills, inspire innovation, and foster well- rounded life capabilities including self-confidence, communication, and leadership skills,
- Give people of all ages opportunities for self-improvement, skills development and economic opportunity through the support of small business/entrepreneurial projects

Basic Fab Lab User Expectations

AMRoC Fab Lab Good Neighbor Policy

Both members and guests of AMRoC Fab Lab are expected to

1. Share space with others, without prejudice.
2. Be willing to learn new skills and knowledge with minimal assistance, and ask questions when unsure how something works.
3. Share knowledge with those less experienced, if able.
4. Leave workspaces clean and tidy, and return all tools and supplies to their proper places
5. Pay for all consumable materials and supplies that are used. *
6. Practice the Golden Rule, and respect others' ideas and property.
7. Be creative, enthusiastic, and open to broadening one's horizons.
8. Be respectful of others, and maintain a pleasant atmosphere in the Fab Lab.
9. Have fun, and allow others to do the same.
10. Try to wear a name tag at all times while in the Fab Lab, for safety and to promote a community atmosphere.

* Material risk and scrap policy. We celebrate experimentation and learning from our mistakes. This means that occasionally projects will not turn out as we wish and materials are scrapped. Members & Guests assume a certain amount of risk for the materials they use for projects whether they have purchased them from Fab Lab or provided their own. If materials are scrapped 1.) Due to a machine malfunction or misguided assistance from Fab Lab staff, AMRoC Fab Lab will generally assume responsibility and pay for or refund the cost of the materials. 2.) Due to the action of the member or guest, the member or guest will generally absorb the cost of the materials.

Basic Safety Policies

1. When indicated, eye and ear protection must be used in the machine area.
2. When working in the machine shop,
 - no loose fitting clothing
 - no open toed shoes
 - long hair should be tied back
 - remove all jewelry, including earrings
 - wear pants or coveralls or work aprons that safely cover legs and arms where necessary
3. Keep the shop clean and put away all tools and materials where they belong.
4. Report any injury to the Fab Lab staff or instructor. First aid kits are accessible in the shop.
5. No food or open drinks in the machine shop area.
6. Seek Fab Lab assistance when moving new material to and from large machines.

Intellectual property

1. Whatever you create in the Fab Lab belongs to you.
2. As per our member and Fab Lab use agreement, members and guests agree to be photographed with their creations and understand that photographs will be posted to our website, which other people may see.
3. While AMRoC Fab Lab does not assist directly with the patent process, we have access to resources that can help.

Behavior

1. We take our Code of Conduct very seriously. Please abide by it.
2. This is a community space, so please refrain from using language that could be viewed as offensive.
3. As a Fab Lab user, you are expected to comply with all staff instructions, policies, and signs posted in the Fab Lab.

Machine Shop Rules

Orientation and training clearance is required for most machine shop equipment use. No equipment can be used without prior approval or badging, nor by youth under 18 without approved supervision.

AMROC Fab Lab Staff must approve all equipment use by anyone other than Fab Lab Staff.

SHOP SAFETY RULES

- Keep the shop clean. Metal scraps should be placed in the scrap bin. Store raw materials and projects. Do not leave any materials or tools on the tables or floor.
- Know the safety requirements of your material.
- Stay focused. Do not permit anyone to distract you. No cell phones, ear buds, or head phones.
- Know what to do in case of a fire. Be familiar with the location of fire exits and fire extinguishers.
- Report any injury to the Fab Lab staff or your instructor. First aid kits are accessible in the Shop.
- Be aware of sharp edges and chips. Always deburr fresh cuts and use a brush to remove chips.
- No food or open drinks.

Attire

- No loose fitted clothing, loose strings or straps
- Tie up long hair.
- Closed-toed shoes only. No sandals. Wear shoes you don't mind getting dirty.
- Remove jewelry. No rings, watches/bracelets or earrings.
- Pants, coveralls or work aprons required in the shop.